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ABSTRACT

The single-grade model of education, based on the division of labor in industry, has come to dominate the school, class, and curriculum organization used by central authorities. Although the multi-grade model is common in developing countries and in rural areas of industrialized countries, the knowledge required for effective multi-grade teaching is ignored and rendered illegitimate by those responsible for training and supporting teachers. This review presents five innovations in multi-grade teaching in developing countries. The Zambian experience is less than 10 years old and relatively small-scale. The Colombian experience with Escuela Nueva spans 3 decades and is large-scale. Both involve external agencies and support from the government mainstream. The Peruvian experience describes the multi-grade reality found among indigenous communities and the recent involvement of nongovernmental organizations in multi-grade teacher education programs. The fourth example, from Sri Lanka, illustrates how some problems faced by multi-grade teachers can be solved by recognizing that even mono-grade classes contain very wide differences in achievement and that a single grade may be conceived as a multi-grade context. The final experience describes Project Impact, which began as a radical reform of primary education in Indonesia and the Philippines and expanded to Liberia, Malaysia, Bangladesh, and Jamaica. Research on the outcomes and costs of multi-grade teaching is reviewed, and implications for the practice of multi-grade teaching are presented. (Contains 61 references and an annotated bibliography with 52 entries.) (TD)

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A review of research and practice

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Several persons have assisted the research. John Lowe prepared the annotated bibliography and identified and summarised materials for use in the general review. Sheila Aikman prepared the section on the experience of multi-grade teaching in Peru's indigenous schools, reported in chapter 2. Vicky Brudal translated materials from Swedish. Diana Guthrie of the Institute of Education's library provided useful advice on tracking the widely dispersed literature on multi-grade teaching. I am grateful to all for their assistance, but bear the responsibility for the views expressed in the work alone.

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Chapter 1 Multi-Grade Teaching: Concept and Status

Multi-grade teaching refers to the teaching of students of different ages, grades and abilities in the same group. It is referred to variously in the literature as 'multilevel', 'multiple class', 'composite class', 'vertical group', 'family class', and, in the case of one-teacher schools, 'unitary schools'. It is to be distinguished from 'mono-grade' teaching in which students within the same grade are assumed to be more similar in terms of age and ability. Substantial variation in ability within a mono-grade class often leads to "mixed-ability" teaching. Multi-grade teaching should also be distinguished from "multi-age-within-grade" teaching which occurs when there are wide variations in age within the same grade. This is common in developing countries, where the age of entry to school varies and where grade repetition is common. However, in North America, where age and grade are more congruent, the terms "multi-age" and "multi-grade" are often used synonomously.

Several writers have pointed out that the first state-supported elementary schools in North America and Europe were un-graded. The school often consisted of a single room in which one teacher taught basic literacy and numeracy to children from six to fifteen years of age. In the US the "death knell of the one room school was sounded" after a visit to Prussia by Horace Mann, the Secretary of the Massachusetts Board of Education, in 1843.

> the first element of superiority in a Prussian school...consists in the proper classification of scholars. In all places where the numbers are sufficiently large to allow it, the children are divided according to ages and attainments, and a single teacher has the charge of only a single class... There is no obstacle whatever... to the introduction at once of this mode of dividing and classifying scholars in all our large towns (Mann quoted in Pratt 1986)

Urban education administrators in the US were soon to recommend that schools be divided on the lines of age and grade, a development which was consistent with the division of labour in industry. The "principle of the division of labour holds good in schools, as in mechanical industry" (Bruck quoted in Pratt 1986). The mono-grade model was to become a universal ideal in the late nineteenth and twentieth centuries and came to dominate the basis of school, class and curriculum organisation used by central authorities.

The persistence of the multi-grade reality towards the close of the twentieth century

Yet despite the ideal, the multi-grade reality has characterised hundreds of thousands of schools throughout the twentieth century and will continue to do so well into the twenty first. Although information about the extent of multi-grade teaching tends not to be collected on a regular basis, 1959 data were collected by UNESCO's International Bureau of Education (Table 1). Table 1 indicates the large number and proportion of teachers who were teaching in one-teacher schools in the late 1950s - some 20-40% in countries of South and Central America, 16% in India, 25% in Turkey and 15% in the USSR. The percentage of teachers teaching in one-teacher schools in some of the European countries was also extremely high - 47% in Spain, 23% in Luxembourg, 20% in France, 10% in Switzerland. Figures in the US and UK were lower - 2.9% in the USA, 3.6% in Scotland, 2.3% in Northern Ireland and 0.7% in England and Wales (UNESCO/IBE 1961).

Comparable data for the late 1980s/early 1990s are not available. Data on multi-grade teachers and schools do not appear to be collected systematically by national and international agencies. Table 2 synthesises available information from a wide variety of sources on the current status of multi-grade teaching. It expresses the incidence of multi-grade teaching at the primary school level in different countries in the years for which the most recent data are available. The several columns in Table 2 reflect the non-standard nature of available data. In some countries data on the number and percentage of one and two teacher schools are available. In others only the number and/or the percentage of schools which have multi-grade classes are available; or the number of classes within a system which are multi-grade; or the number of teachers per school; or the percentage of teachers who teach multi-grade; or the percentage of students who study in multi-grade classes.

Table 2 suggests that in 1986 India had over 300,000 one or two teacher schools, representing more than 60% of all schools. In Sri Lanka the percentage is lower. However the seven hundred schools in Sri Lanka which have either one or two teachers are located in the most difficult environments in a country which has achieved near universal enrolment in primary school. In Malaysia too the multi-grade schools are located in those areas which are disadvantaged in several ways - Malay and Chinese schools in small villages and settlements and in the remote, secluded areas of Sabah; Tamil schools in rubber estates and the aboriginal schools in the interior and remote areas of Peninsular Malaysia.

Table 1 Numbers of teachers and students in primary education and in one-teacher schools, by country c.1959

	Teachers			Pupils		
	Primary Education	One-Teacher Schools	%	Primary Education	One-Teacher Schools	%
Afghanistan	2,818	606	21.8	123,117	26,761	21.7
Albania	5,110	1,194	23	174,332	37,400	21
Australia	36,724	3,262	8.9	1,203,949	71,938	6
Austria	16,401	957	5.8	511,710	24,906	4.9
Belgium [1]	38,410	2,279	5.9	955,650	50,214	5.3
Brazil [1]	207,870	80,856	38.9	1,376,245	518,492	37.7
Bulgaria	22,011	1,132	5.1	1,000,000	26,000	2.6
Byelorussia	31,399	1,553	4.9	702,517	—	—
Chile	21,468	1,141	5.3	726,753	52,676	7.2
Colombia	38,061	13,303	30	1,493,123	—	—
Denmark	14,146	673	4.8	357,334	21,536	6
Ecuador	12,611	2,941	23.3	529,224	—	—
Ethiopia	3,100	129	4.2	141,777	9,144	6.5
Finland	22,769	753	3	624,195	—	—
France	218,488	43,490	19.9	5,840,000	1,017,400	17.4
German Federal Republic	130,037	8,411	6.5	4,868,786	280,741	5.8
Honduras	6,109	2,196	35.9	190,261	—	—
Hungary	56,449	171	0.3	1,314,432	3,428	0.3
India	710,139	116,263	16.4	25,964,808	4,221,501	16.3
Iran	27,716	3,527	13	978,810	133,161	13
Ireland	14,233	755	5.3	505,363	—	—
Italy	184,724	11,517	6.2	4,704,158	210,516	4.5
Japan [1]	372,556	566	0.2	13,423,482	5,674	0.1
Jordan	4,073	261	6.4	148,598	8,573	5.8
Luxembourg	1,098	250	22.8	28,014	—	—
Malaya	37,596	496	1.3	1,072,552	15,026	1.4
Netherlands	42,104	76	0.2	1,475,492	1,200	0.1
New Zealand [1]	13,150	502	3.8	418,888	—	—
Nicaragua	3,770	1,487	39	152,783	62,887	41
Norway	15,081	458	3	439,000	4,144	0.9
Panama	4,833	479	9	110,330	—	—
Poland	140,311	4,531	3.2	4,574,225	128,408	2.8
Spain	93,924	44,062	47	3,598,191	—	—
Sweden	36,218	173	0.5	837,029	2,406	0.3
Switzerland [3]	6,803	669	9.7	221,697	14,575	6.6
Bern	3,656	139	3.8	104,000	2,660	2.6
Fribourg	678	136	20	24,332	4,218	17
Grisons	695	111	18.4	18,074	—	—
St. Gallen	1,097	59	5.4	40,292	1,602	4
Ticino	707	203	29	17,928	3,649	21
Vaud	665	122	18	35,145	2,446	7
Thailand	95,981	893	0.9	3,434,207	41,766	1.2
Tunisia	6,155	3	0.1	361,532	56	0.1
Turkey	51,148	12,946	25	—	—	—
Union of South Africa	14,768	408	2.8	440,656	4,100	1
U.S.S.R.	152,400	22,300	14.6	2,949,500	442,000	14.9
United Arab Republic	73,394	1,125	1.5	2,710,067	39,874	1.5
United Kingdom [2]	157,001	1,765	1.1	4,767,888	31,970	0.7
England and Wales	132,424	970	0.7	3,969,319	17,329	0.4
Scotland	18,300	650	3.6	603,530	11,700	1.9
Northern Ireland	6,277	145	2.3	195,066	2,941	1.5
United States	814,967	23,695	2.9	23,414,947	400,000	1.7
Uruguay	7,783	739	9.5	251,690	—	—
Vietnam	17,819	1,169	6.6	1,001,757	76,579	7.6

[1] Public and private schools.
[2] Total of the figures given for England and Wales, Scotland and Northern Ireland.
[3] Total of the figures given for the Cantons of Bern, Fribourg, Grisons, St Gallen, Ticino and Vaud.

Source: UNESCO/IBE (1961)

Table 2 Incidence of multi-grade schools, teachers and students c. 1990

Country	Year	Schools				Teachers		Students	
		1teacher school	2teacher schools	with MG classes	classes with MG	per school	who teach MG	in MG classes	in 1-2 teacher schools
India	1986	152848 (29%)	168423 (32%)						
Pakistan	1989					2.3 Rural 9			
Sri Lanka	1991	222 (2%)	471 (5%)						
China	1986			420,000	(12%)				
Korea	198?			(2%)					
Malaysia	198?			950					
Philippines	198?				14923 (8%)				
Mexico	198?	(22%)							
Peru	1988	(39%)							
Fiji	c 1990			(50%)			(25%)	(28%)	
Zambia	1984	(26%)							
Solomon Islands	c1990			(25%)					
Kiribati	c1990						(60%)	(50%)	
Tuvalu	c1990			(91%)					
Marshall Islands	c1990			(90%)			(60%)		
Cook Islands	c1990			(50%)					
Western Samoa	c1990						(10%)	(8%)	
Vanuatu	c1990							(28%)	
Australia Northern Terr	1988			(40%)					
Sweden	1987/8			439 (35%)					
US	1990/1	(1%)							
France	1987/8				61525 (22%)				
England	c 1990			1151 with <50 students					
Wales	1976	17 (0.9%)	247 (14%)	583 (30%)					
Scotland	1981								(2.5%)

Sources NCERT 1992, France 1989, Tovar 1989, Welsh Office 1978, Scottish Education Dept 1981, GOP 1993, Collingwood 1991, Sri Lanka 1993, APEID 1989, Abhayadewa 1989, Veenman etal 1989, Pratt 1986, Kent (nd), Thomas and Shaw 1992, Malmros and Sahlin 1992, US 1992.

Table 2 also suggests that in Peru the percentage of schools which were one-teacher schools in 1988 was almost 40%. These schools are located in rural areas, predominantly in the Andean and Amazon regions of the country. In Zambia too the figure is high, at 26% in the mid 1980s. In Pakistan the average number of primary teachers per school was 2.3 in 1989 across the country, and only 1.9 in rural areas where the primary cycle spans five years. Multi-grade classes are common in the primary schools of the Pacific Islands. They are also common in the rural areas of industrialised countries. In the Northern territories of Australia for example 40% of schools have multi-grade classes. The comparable figure for France is 22% and Sweden 35%. In Wales 30% of primary schools had between one and four teachers in a primary cycle spanning seven years in 1976. In England more than 1,000 schools have enrolments of less than 50 students.

The gap between the multi-grade reality, teacher education and curriculum assumptions

Multi-grade teaching is probably more common than we realise or care to admit. Table 1 and columns 3 and 4 in Table 2 on one and two-teacher schools present only the extremes of the multi-grade reality. Any school with more grades (eg six grades of primary) than teachers (eg four teachers) must organise learning for some of its teachers and students along multi-grade lines some of the time. And yet few Ministries of Education, few Curriculum Development Agencies and few Teacher Education Institutions recognise this reality. The knowledge required to work effectively within it appears not to be transmitted via textbooks on curriculum and teaching methods, via syllabi, via teacher's guides, nor via the content and pedagogy of teacher training colleges or Universities. The knowledge required for effective multi-grade teaching is rendered illegitimate by those with a responsibility for training and supporting teachers in their work.

A brief review of standard texts on curriculum development illustrates the point. The selection was made from the library of the Institute of Education at the University of London, which houses one of the largest English language collections of texts on education.. The literature which addresses primary schools tends to assume that same-age class groups are the basic organisational units for which curricula are developed. There is no mention of multi-grade, multiclass or mixed-age teaching in a collection on *Aims, Influence and Change in the Primary School Curriculum*, edited by P.H.Taylor and published by the UK's National Foundation of Educational Research in 1975. More recently, Blenkin and Kelly (1987) write on *The Primary Curriculum: a process approach to curriculum planning*. Again there is no mention of multi-grade. A mono-grade structure appears to be the taken-for-granted form of organisation. An American textbook by Shepherd and Ragan (1982) refers to the "non-graded schools movement" in the US which had challenged nineteenth century American policy assumptions about the ideal organisation of learning and had encouraged *de facto* a multi-grade approach. However the impact of this movement in the US was shortlived and it is perhaps for this reason that Shepherd and Ragan make no reference to multi-grade teaching groups in their chapter on "curriculum delivery". In *Understanding the Primary Curriculum*, Boyd (1984), writing from an English perspective, makes no mention of multi-grade teaching but when discussing school-based curriculum development does mention the value of a flexible

approach to the grouping of children. The problems of coping with special educational needs, ethnic differences, gender and new technology are addressed in the section on "curriculum issues" but the issues faced in multi-grade, multi-class and small schools do not warrant a mention. In view of the small proportion of schools in both the UK and the US in which multi-grade teaching occurs one can perhaps understand its exclusion from overviews of primary education organisation and curriculum, notwithstanding the fact that the issues are central to the needs of multi-grade teachers. However, it should be noted here that our review has barely scratched the surface of a Scandinavian literature on multi-grade teaching. Reports on the extent of multi-grade teaching in primary schools in Sweden by Malmros and Sahlin (1992) and in Finnish secondary schools by Laukkanen and Selventoinen (1978) suggest that multi-grade teaching enjoys a positive reception by many teachers, is adopted for pedagogical reasons, and is seen as a fertile ground for the development of new curriculum ideas for all types of school, not simply multi-grade.

The widespread exclusion of discussion of multi-grade teaching, and the implicit assumption that most teaching is mono-grade, is the more surprising in texts which purport to focus on the conditions of schooling in developing countries. In 1986 the National Institute of Educational Research in Tokyo undertook a study of the elementary and primary school curriculum in the countries of Asia and the Pacific (NIER 1986). Although the information presented on class size indicates that multi-grade teaching is rather widespread no country reports makes specific mention of it. The text on India, Australia and Nepal includes sections on school organisation, methods of teaching and classroom management. None addresses the implications for these of the multi-grade reality. In other words it appears to be a "non-problem". Although the report on Pakistan mentions that one of the problems is a lack of trained teachers to handle multiple classes, this issue is not re-addressed in the account of teacher training. In his *Curriculum and Reality in African Primary Schools*, Hawes (1979) makes a passing reference to single teacher schools in discussion of official education statistics. Class sizes in "deep rural" areas are often low and uneven, and

> it is common to find small classes sharing a classroom, sometimes with a single teacher, sometimes with more than one but nearly always seated as a separate group with their own 'territory' and blackboard, for their exists a strange orthodoxy that a teacher with modest education and training 'cannot be taught to handle more than one class at a time'.
>
> (Hawes 1979:15)

Unfortunately Hawes neither explores the orthodoxy nor challenges it. Elsewhere he explores the problems of large class teaching, but not in relation to mixed-grade/age classes (Hawes 1978). The omission continues in Onwuka's (1981) edited collection on *Curriculum Development in Africa* and Grant's (1978) discussion of *School Methods with Younger Children* written for an African audience.

In general then it would appear that a mono-grade organisation of schools remains the taken-for-granted assumption of most of those who research and advise on curriculum development in both developed and developing countries. Multi-grade teaching is assumed either not to exist, or to exist but to be invisible, or to exist at the margins but to be non-problematic, or to be recognised as problematic but non-resolvable - and therefore best not mentioned

There are a few exceptions to this dominant educational literature. Although UNESCO does not collect routine statistics on the

extent of multi-grade teaching within school systems globally, it has, since 1961, recognised that it is an educational condition in need of constant support and attention. The one-teacher school conference sponsored by the International Bureau of Education in 1961 and the International conference of Ministries of Education led to the establishment of unitary schools in Latin America (UNESCO 1961). Throughout the 1980s the Asia and the Pacific Programme of Educational Innovation for Development discussed the continuing problems faced by multi-grade teachers especially in rural, isolated and sparsely populated areas (eg UNESCO/APEID 1981, 1982, 1988, 1989). The 1989 UNESCO/APEID report confirmed many of the curriculum points raised above about the marginal, peripheral and anomalous status of multi-grade teaching and schools. The summary of experiences from Australia, Bangladesh, People's Republic of China, India, Indonesia, Republic of Korea, Malaysia, Maldives, Nepal, Pakistan, Philippines and Thailand confirmed that:

> primary curriculum documents and their associated lists of "minimum learning competencies" have not been specifically designed for use by teachers in multi-grade schools
>
> school plans, instructional materials and methodological guidelines are often difficult to apply to multi-grade teaching situations
>
> there is a shortage of support materials for teachers and individualised instructional materials for learners
>
> there is a need for more work on the kinds of continuous evaluation, diagnostic testing, remediation and feedback which would best assist multi-grade teaching

and added that

> although many teachers work in multi-grade teaching situations few countries have developed special teacher training curricula for pre- or in-service training. Teaching practice during preservice is invariably carried out in mono-grade schools
>
> teachers posted to teach in multi-grade schools "develop a sort of psychological alienation from the school"
>
> the educational system as a whole pays inadequate attention to the proper functioning of multi-grade schools through, for example, not filling vacant teaching positions in rural areas, the absence of systems of teacher accountability, a lack of basic physical facilities in these schools, lack of training for supervisors of multi-grade schools and a general "inattentiveness of education officers to the needs of these schools"
>
> adapted from APEID (1989)

The purpose of this review is to draw together material from a range of multi-grade educational settings. The difficulties which we have faced in identifying and locating material and in having a modest amount of it translated reflects its status on the fringe of national systems of education, of national and international research and policy agenda and of information networks. It is an educational condition barely addressed in national policies of education, almost non-existent in the content of teacher education courses and mostly ignored by national curriculum developers. Where the issue has been a matter for research the findings are generally reported in journals which deal with matters rural or peripheral to the mainstream of educational debate. It is essentially a problem faced by teachers and students in peripheral rural areas unsupported and unrecognised by mainstream and centralised education systems. We are confident that our review has scratched only the surface of the total stock of written material and collective professional advice but recognise also that much of it has probably been written by teachers working in peripheral settings which increase the likelihood of its remaining at the periphery of information dissemination networks.

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Chapter 2 Lessons from Developing Countries

Five innovations in multi-grade teaching over the past two decades in developing countries are presented in this chapter. The first two experiences, from Zambia and Colombia, have addressed the multi-grade reality of rural primary schools directly. The Zambian experience is less than ten years old and relatively small-scale. The Colombian experience spans three decades and is large-scale. Both have involved external agencies and support from the government mainstream. The third experience, from Peru, describes the multi-grade reality found among indigenous communities and the recent involvement of NGOs in teacher education programmes oriented towards multi-grade teaching. The fourth, from Sri Lanka, illustrates how some solutions to the problems faced by the multi-grade teacher are being offered on a small scale through the recognition that even mono-grade classes contain very wide differences in achievement and that a single grade may be conceived as a multi-grade context. The final experience draws on innovations in rural primary education in several countries. Project Impact began as a radical reform of primary education in Indonesia and the Philippines and expanded subsequently to Liberia, Malaysia, Bangladesh and Jamaica. Although not oriented exclusively to the problems of multi-grade classes, many of the features of the innovation offered solutions to them.

Zambia: teacher education and support for multi-grade schools

The 1984 education census returns in Zambia indicated that 800 of the 3008 primary schools were "ungraded" (i.e.26%), meaning that they offered only four grades of primary schools in a full cycle of seven grades. These ungraded schools had fewer teachers than grades, small enrolments in each grade and were located in remote and sparsely populated areas.

Much of rural Zambia is sparsely populated. In 1990 the population density was 11 persons/sq.km. In 1980 this figure was even lower - 7.5 persons/sq.km. Figures for India and China in 1990, by contrast, are 260 and 118 respectively. Although the population growth rate of 4% between 1980 and 1990 is among the highest in Africa, the rate in some areas is low and declining, with implications for the pattern of provision of education and other social services.

While a majority of children attending primary school in urban areas completes seven years of primary education, the percentages are smaller in rural areas where enrolment in an ungraded or incomplete school represents a terminal educational experience. A particular problem faced in many of these incomplete schools is the small enrolment of children in each grade. The problem is essentially one of resources - rural communities in sparsely populated areas too impoverished to contribute to the physical development of a school, and the high costs of providing teachers to teach each grade separately. Two solutions have been adopted (Lungwangwa 1989). The first, tried out in 50 of the 800 schools, is a biennial intake in which students enrol in grade 1 only every second year. The second is the use of multi-grade teaching in which two or more grades are taught simultaneously.

Multi-grade teaching was introduced to a number of Zambian primary schools in rural areas in the mid 1980s as part of a consciously formulated "project" supported by the Ministry of General Education and Culture and the Swedish International Development Authority. It started from a very small base in four schools in Mkushi district and was extended to a further 40 schools in 1986 and 50 in 1987. It was argued that multi-grade teaching would enable small schools with low enrolments in each grade to upgrade themselves to complete grade 7 primary schools without requiring additional classrooms and teachers.

In-service training courses in multi-grade teaching were developed and mounted by the Malcolm Moffat Teachers' Training College (MMTTC). Others "inputs" to the project consisted of language and maths texts and exercise books, follow-up seminars, inspection, evaluation and the incorporation of multi-grade teaching as part of the regular preservice teacher training programme.

Approaches to curriculum organisation and teaching appear to have been promoted by the MMTTC included

> **the common timetable option:** where all children learn the same subject in a given timetable period, but each grade group follows its own work, according to its own work programme and grade level
>
> **the subject stagger option:** subjects are staggered on the timetable so that grade groups learn different subjects in the same period. Subjects which require high teacher-pupil contact are matched with those requiring little
>
> **the subject grouping option:** subjects are presented to all grade groups together at the same time. Some subjects eg music, art, religious knowledge and social studies lend themselves well to this option.

An evaluation of the four pilot schools and the College's involvement in teacher's training was undertaken by Lungwangwa (1989). The evaluation addressed

> the extent to which the multi-grade system had enabled all children in a school catchment area have access to the full primary level programme
>
> the costs of this form of provision
>
> the role of the teacher and the nature of his pedagogical activities in a multi-grade school
>
> the impact of multi-grade teaching on the cognitive achievement of students
>
> the impact of this form of teaching in promoting independent and self-directed habits of study
>
> the internal efficiency of multi-grade schools
>
> the impact of multi-grade teaching on the participation and performance of girls
>
> the perceptions of multi-grade teaching held by participants, parents of students and the wider local community
>
> the impact that the introduction of this system has had on the attitudes and mores of the local community
>
> (Lungwangwa 1989:13-14)

The College

The Malcolm Moffat Teacher Training College (MMTTC) is the Zambian-designated institution for the formal in- and pre-service training of multi-grade teachers. Keen support was lent to the idea of multi-grade teaching by the principal, the vice-principal and the multi-grade "coordinator", the first two persons having had some prior exposure to it in Australia in the 1970s. Despite the obvious enthusiasm of these key individuals a number of problems have been encountered in the implementation of the

training programmes. Lungwangwa's (1989) review notes that

> (i) By 1988 the multi-grade teacher education course had not been well integrated into the mainstream programme for teacher preparation. Since most members of staff had themselves no experience of multi-grade there was anxiety and a general lack of enthusiasm for it
>
> (ii) Multi-grade training has enjoyed the status only of an extra-curricula activity since its inception and has been timetabled to occur during the "last few days before teaching practice commences"
>
> (iii) Because of its lack of formal status students do not take it seriously (and)...see it as a filler not as an important component of their training.. there are no examinations in multi-grade teaching ...(and it)... is resented because it is considered to be a preparation to teach in the remotest parts of the country, a situation they would like to avoid at any cost
>
> (iv) The four lecturers involved in the multi-grade programme feel "overstretched" because their teaching loads are already full. They feel that the absence of special remunerations and formal training in multi-grade affects their recognition and status
>
> (v) A scarcity of resources in the schools restricts what the trainees can do during their multi-grade teaching practice. "Independent learning" is seen by staff to form the basis of multi-grade teaching and this, in turn, rests on the availability of learning resources.

Despite these perceived constraints, however, college staff believe that multi-grade teaching can have some positive outcomes. It can enhance independent learning, it encourages teachers to adopt pupil-centred approaches to teaching, it facilitates revision of materials covered in earlier grades, it increases pupil interaction and contributes to the country's objective of universalising basic education.

The Schools

The four pilot schools were visited and evaluated in line with the points noted above. We present here just two of the four cases, contrasting in several respects.

The Mwape primary school

Mwape Primary School was established by Jesuit missionaries in 1945. Between 1945 and 1963 children who completed the grade 4 and who wished to continue their primary education enrolled in grade 5 at the Chingombe mission boarding school, some 75 km. away. Because ot the distance and the annual boarding fees few students continued. In 1964 the Mbosha school was established at a closer location and it was estimated that about 5 children proceeded to grade 5 each year between 1964 and 1984. However few of these remained beyond the end of grade 5 because of the boarding costs, and between 1970 and 1984 only three students who began their education at Mwape succeeded in graduating from grade 12.

The introduction of multi-grade teaching has resulted in increased enrolments, although migration out of the area and the greater attractiveness of another primary school (where children receive free uniforms) has led to increases smaller than might have been expected. By 1988 45 boys and 43 girls were enrolled, compared with 17 boys and 16 girls in 1983. In 1988 the school served 10 villages.

There are two teachers. One teaches grades 1 and 2 in the morning and 3 and 4 in the afternoon. The other teaches grades 5, 6 and 7 as a combined class. The teachers expressed concern over lack of resources and workload. Requests from them for a third teacher had gone unheeded. Because formal lessons were taught during both the

morning and afternoon, creative work, practical skills and production unit activity have been displaced. Despite these constraints the teachers were pleased to report that of eight students who sat the grade 7 examination in 1987 four had qualified for grade 8. The school-community relationship was not particularly strong and no contribution had been made by the parents towards the rehabilitation of school buildings

Kalombe Primary School

The Kalombe school experience has been a little different. The school, which currently serves four villages, was established later than Mwape, in 1965. Between then and 1984 those children who proceeded to grade 5 attended a school 19 km away. The weekly boarding fees prevented most children from proceeding and the Kalombe school was regarded as a "dead end" by most parents. After the introduction of multi-grade teaching, enrolment increased rapidly, from 123 in 1985 to 204 in 1988. However the numbers in each grade are now large enough to justify a mono-grade structure. One of the reasons for the increased enrolment has been in-migration, due mainly to a resettlement scheme. Parents expressed the view that the provision of upper primary grade schooling, made possible through the multi-grade teaching, had been one of the attractions of settling in the area.

There are three teachers in the school, two of whom were trained teachers and had specialised in multi-grade teaching. However they recalled that their multi-grade training consisted of two weeks practice in 1984 which, though valuable, was inadequate. They felt a need for more in-service training in multi-grade teaching and felt that the concept of multi-grade teaching should be introduced to all teachers as part of the normal pre-service training. The system of multi-grade teaching had been implemented "vigorously" and the recommended methods had been tried out. Teachers felt that the 'common timetable' and 'subject stagger' approaches had been the most useful, partly because of the large numbers of students involved. Unfortunately the volume of learning resources had not kept pace with increased enrolments, making the idea of "independent" learning difficult to implement. Increased enrolments were also creating pressure on desk and seat space. In general the teachers felt that the present enrolment justified their school being upgraded to a mono-grade 'complete' primary school. Its continued classification as a multi-grade institution, they felt, led to too great a workload for the teachers.

Teachers felt that with multi-grade teaching students were better prepared for self learning after they had left school. It was felt that multi-grade teaching contributed greatly to the mastery and enduring impact of basic skills, an interesting perception which could warrant further investigation. The progression rate from grade 7 to 8, of 12.5% in 1987 was of a level similar to the national average.

In contrast to Mwape the school-community relationship is very strong. A very strong parent-teacher's association has built a shelter for grades 1 and 2 and a brick house for the third teacher. The PTA maintains the classroom block to a very high standard and is raising money for another classroom. At the same time the community is aware of the pressures under which the three teachers work and cited instances of low proficiency of children in reading. They are aware that if more teachers were provided they would be expected to build more teachers' houses and raise money for additional classrooms. This prospect was viewed positively.

Mwape and Kalombe are just two of the schools studied and their experiences are rather different. The increases in enrolment in both schools have been impressive, though the average class size of each of the seven grades in Mwape remained too small to develop a mono-grade teaching structure. In Kalombe the increases in enrolment justified a switch to mono-grade teaching. Mwape is experiencing a degree of out-migration, with students attending another school where the incentives are higher and parents are shifting their homes in search of better farming lands. Kalombe, by contrast, has benefitted from the in-migration of children and families generated through a resettlement scheme. Perhaps it is this difference in orientation, the former "out" and the latter "in", which has contributed to the very different levels of support offered the respective schools by the community - rather low in Mwape and high in Kalombe. Teachers in both schools were enthusiastic about multi-grade teaching, perceived that it had learning benefits and were keen to receive further training. At the same time all teachers felt that multi-grade teaching created a heavy workload and was compromised by a failure of resources to keep pace with increases in enrolment. In Kalombe the numbers were now such that they could justify a changeover to a mono-grade system, the dominant system in Zambia.

Colombia: *Escuela Nueva*

In rural Colombia students receive, on average, 1.7 years of schooling, compared with 3.8 years in urban areas (Colbert, Chiappe and Arboleda 1993). In 1985 the transition rate of students from first to second grade was just 45 per cent in rural areas, with repetition rates in these two grades averaging 20%. Compared with schools in urban areas the quality of rural education has been characterised by a greater use of passive pedagogy, the use of inappropriate urban-biased curricula, lack of educational materials, rigidity of calendar, and a lack of community involvement. Underpinning all of these is a multi-grade reality of school organisation insufficiently supported by teacher training and materials. A number of efforts to address these problems have been made over the years, beginning in the 1960s with the implementation of the *unitary school*, an idea promoted by UNESCO in 1961. In 1967 the Colombian government decreed a unitary school system of one-teacher schools in sparsely populated rural areas. Between 1967 and 1974 a number of approaches were adopted, but the diversification of approach to the problems of the rural school, "each responding to different aspects of the problem", led to a lack of consensus on strategy and "universalisation fell short" (Colbert, Chiappe and Arboleda 1993).

In 1975 *Escuela Nueva* - the New School programme - was organised in an attempt to address the problems of rural education which persisted in spite of the unitary school approach. A number of accounts of the development of this programme are available (eg Colbert, Chiappe and Arboleda 1993, Colbert and Arboleda 1989, Colbert 1987 and Colbert and Mogollon 1977). This account is based on Colbert *et al 1993*.

By 1992 *Escuela Nueva* included 17,000 schools. It provides

> active instruction, a stronger relationship between the school and the community, and a flexible promotion mechanism adapted to the lifestyle of the rural child. It comprises four main components - curriculum, training, administration and community relations.

The programme assumes that the rural schools involved in the programme are multi-grade and that innovations in the curriculum and teacher training need to be organised with this type of school in mind. Student self-instruction, flexible promotion, learning centres and teacher training are central to the multi-grade strategy.

Self Instruction Study Guides, Flexible Promotion and Learning Centres

The self instruction study guides are developed for children from grades 2 to 5 in four basic curriculum areas (natural science, mathematics, social studies and language). The guides adopt a method which promotes active learning, cognitive skills, discussion, group decision-making and the development of application skills within the local environment. The guides contain sequenced objectives and activities. Because the student follows the work at his/her own pace the schools operate a system of "flexible promotion". Hence students do not repeat grades. They are promoted to the next grade of work when they have mastered the present objectives and activities.

The study guides reflect both the national curriculum and regional and local adaptations. The national material are developed and printed centrally. The regional and local adaptations are developed by teachers during training courses and are produced using simple technology. The printing of the core study guides is done nationally. The study guides are used by groups of two to three children at a time and facilitate the work of the teachers required to work with several grades in the same classroom. Conventional textbooks tend not to facilitate self instruction.

Learning Activity Centres in each school complement the study guides. Materials to be used in the four basic curriculum areas are housed within the centre and students are guided to specific activities and observations based on these materials by the study guides. School libraries complement the study guides and the learning centres and contain reference material, dictionaries, textbooks and children's literature. The cost is low - a library of 100 volumes costs US$225.

In-service teacher training is an integral part of the New School strategy. Each teacher attends three in-service workshops over a period of one year, with a series of follow-up workshops thereafter.

The first workshop initiates the teacher in the basic concepts and methods of the programme, the purpose of involving students in the organisation of the school, the use of learning centres and group work in the organisation of learning, and the mobilisation of community resources for the development of the school. All these objectives are written up as self-study units in a teacher's training manual and the teachers follow these, engaging in active learning, in exactly the same manner as children will follow their guides in the classroom.

The second workshop is on the use and adaptation of children's study guides. This workshop takes place only after the school has been reorganised and the community mobilised. During the workshop teachers study the children's materials and learn how to use them for multi-grade teaching and "flexible promotion". Sets of materials for the children's use are delivered to the teachers during the workshop. The third workshop focuses on the role of the school library as a complement to the study guides and learning centre. The teachers receive the books for the library at the end of the workshop.

The follow-up workshops are organised monthly to "exchange ideas, analyse problems and discuss results". Over time these local non-formal workshops became formalised into "microcentres", described as

> a participatory experience where teachers could evaluate, create, enrich their own experiences, innovate, criticize, analyse and carry out projects for the improvement of the school and the community

(Colbert *et al* 1993:59)

Demonstration schools also play an important role in training. During the initiation workshops teachers visit a school which is implementing the curriculum approach effectively and which is operating as an effective community centre. Both the micro-centres and demonstration schools maintain a horizontal training network and are regarded as a "decentralised, in-service, low-cost mechanism to maintain quality in the process of going to scale" (p 59).

Stages in Going to Scale

Since 1975 three stages of development of the programme have been observed. These have been described as 'learning to be effective', 'learning to be efficient' and 'learning to expand'.

> stage 1: **learning to be effective:** this stage occurred between 1975 and 1978 when the programme was implemented in 500 schools in three regions. During this stage materials for teachers and students were designed, administrative and financial arrangements put in place, administrators and teachers trained, delivery systems organised, materials reproduced and distributed, the programme implemented and initial evaluation conducted. The Agency for International Development (AID) provided financial support.

> stage 2: **learning to be efficient:** this stage occurred between 1979 and 1986 when the programme was extended to 8000 schools. Training courses which had been developed during the first phase were replicated at the national level and the teacher's manual and children's study guides reproduced. Revised versions of the training courses and self study materials were developed and a core team established within the Ministry of Education. During this stage the Colombian government adopted the *Escuela Nueva* strategy to universalise rural primary schooling throughout the country. A variety of sources - government, the Interamerican Development Bank, the Coffee Grower's Federation, the Foundation for Higher Education and the World Bank - provided financial support.

> stage 3: **learning to expand:** the third and current phase began in 1987 and was planned to include 27,000 schools by 1992. By this stage the *Escuela Nueva* movement was no longer a programme; it was now the declared official policy of government embodied in a national plan. New forms of organisational capacity were built at national, department and school cluster level.

Programme Evaluation

Colbert *et al* (1993) report the results of the evaluations which have been conducted on the programme to date. Rodriguez (1978) suggested during the first stage that there was no difference in the levels of creativity of children in multi- compared with mono-grade rural schools, but the self esteem of both boys and girls was higher. More recently Rojas and Castillo (1988) report that a majority of teachers believe that the New School is superior to other types of traditional rural school. Students in New Schools performed better on tests of socio-civic behaviour, self esteem and some subjects in some grades.

In short, it has been suggested that the New School system responds successfully to the needs of the rural child in Colombia because

> it offers a multi-grade approach that permits provision of complete primary schooling where incomplete schooling exists

one or two teachers can handle five grades in the same school

it involves administrative agents and communities as well as children and teachers

the learning strategy adopted encourages active, creative, participatory and responsible learning

through their participation in the school government children learn civic and democratic behaviour

children learn at their own pace using self instructional materials

there is no grade repetition: promotion to the next objective or grade is progressive and flexible. Children can study at school and at home. They can continue to help their parents at home while studying

materials are affordable - one set is shared among three children and each set lasts several years. The content of the materials reflects a national curriculum and can also include regional and local adaptation

teachers are facilitators: they guide and orient learning. Teacher workshops employ a pedagogy similar to the one they will use in their classrooms

the inservice training of the teachers is local, replicable and permanent

(adapted from Colbert *et al* 1993)

We return to the results of the evaluation in Chapter 3.

Peru: Indigenous schools

Thirty nine percent of primary schools in Peru are one-teacher schools (Tovar 1989). One-teacher schools occur in rural areas, predominantly in the Andean and Amazon regions. References to multi-grade teaching and multi-grade schools occur very infrequently in the Peruvian educational literature. Where they do appear reference is usually made to the prevalence of one-teacher schools over multi-teacher schools, rather than multi-grade teaching as opposed to mono-grade teaching. In rural areas multi-grade teaching is the norm for most schools, be they multi-teacher schools or one-teacher schools. Figures for the number of teachers per primary school nationally are 2.2 and for the Amazon region 1.5 (Chirif 1991:47).

While the provision of primary schooling for children in rural areas has increased over the 1980s, this has been achieved through an increase in the number of one- and two-teacher schools. In the case of the one-teacher school, a teacher can be faced with an age range from 3/4 up to 15/16 years, divided into nursery grade (initial) and six grades.

Besides their rural location, a number of other factors influence the multi-grade school. These include

an absence of teacher training. One-and two-teacher schools, located in the most remote rural areas, are considered very low-prestige schools and are allocated the lowest qualified teachers. In the Andean Department of Apurimac, more than 85% of teachers in one-teacher schools have no teaching qualifications (Zuñiga 1989); in the Tambo region in the Central Rainforest, one-teacher schools are staffed by local teachers who have only some years of primary schooling plus a few summer vacation courses. Here class sizes reach 75 students (Heise 1987).

a lack of resources. Rural multi-grade schools are very poorly equipped, not only in terms of the fabric of the school itself but in terms of text books and other educational materials, which in some schools do not exist at all. This poses serious constraints for the teacher who becomes entirely dependent on the blackboard, on which it may be barely possible to write.

cultural and linguistic diversity. In both the Amazon and Andean regions, which have large indigenous rural populations, there is a high cultural and linguistic diversity. Consequently,

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> multi-grade teachers are faced with the task of teaching a monocultural and monolingual Spanish curriculum to indigenous children, who, in many cases, are completely monolingual and monocultural. The cultural and linguistic backgrounds of the teachers are often distinct from those of their students.

This is the situation which exists in many areas and was heavily criticised in southeastern Peru by a wide range of institutions and NGOs working in education

> The lack of teacher training hinders the use of adequate teaching methodologies, which becomes an acute problem when the teacher is working in a one-teacher school where the student population utilise a diversity of mother tongues depending on their ethnic affiliation

(CAAAP 1992.13).

Faced with this situation, a multi-grade teacher will often divide the students into two groups. The first, grades 1 and 2, comprise the mono-lingual mother tongue students and the second, grades 3 to 6, comprise students with at least some understanding of Spanish. Given that each grade contains students who are repeating the grade and students new to the grade there may be considerable variation in ability within each grade.

Teacher Education

Teacher training colleges (Institutos Superiores Pedagógicos) show little concern for training new teachers to cope with multi-grade classes. This reflects the orientation of teacher training in Peru towards teaching in well equipped urban schools where there is one teacher per grade. Not only is this type of school in the minority but within the education system it is the most prestigious and the most lucrative. The most highly qualified and experienced teachers aim for an urban posting in a Mestizo area where, like themselves, the students are Spanish speaking.

In contrast, the least prestigious schools - rural, indigenous one-teacher schools - receive a high percentage of teachers with no training and many such schools find it difficult to get teachers at all. Mestizo teachers arrive with no methodological orientation for multi-grade teaching and no ability to communicate with their mono-lingual students. This situation is linked to the general abandonment and lack of concern for rural regions, in particular those with a high indigenous population. This abandonment encompasses education in general and indigenous education in particular.

Nevertheless, there is a growing concern for improving the quality of primary school education for indigenous peoples in Peru, which has taken the form of a Ministry of Education directive instructing all Instituto Superiores Pedagógicos to offer training courses for indigenous teachers in *intercultural bilingual education*. The new courses, however, are designed to encourage teachers to adapt the content of the existing 6 grade curriculum, with its rigid system of grade promotion through formal exams. It does not encourage the development of new styles of pedagogy and classroom organisation which would enhance the task of the multi-grade teacher. The training on these new courses is primarily concerned with developing a satisfactory methodology for teaching Spanish as a second language.

The national curriculum as it stands today provides the possibility for 'unitary' teaching. That is, the curriculum is presented in terms of textbooks for each grade comprising lesson plans and structured in such a way that certain subjects or themes appear through all grades with appropriate levels of ability. However a study in indigenous Amazon

schools has shown that teachers appear to lack the ability to organise the official curriculum in terms of thematic units. They work instead with each grade independently and may be dealing with several different topics with several different grades simultaneously (see Gasché *et al.* 1987).

The following example from a primary school in the Arakmbut community of San Jose presents a contemporary multi-grade teaching reality in an indigenous area. The primary school is run by two lay-missionary Spanish speaking teachers with no formal teaching qualifications and illustrates the labour intensity of teaching common in many multi-grade schools. The two teachers had divided the students into one class of Initial, Grade 1 and Grade 2, while the other comprised Grades 3, 4, 5 and 6.

The day began with maths and the lesson proceeded in a pattern familiar to the students: Grades 3 and 4 children watched and waited while the teacher wrote fractions on the blackboard for both grades to do together and a sentence explaining what had to be done: "order the fractions according to increasing number, then into decreasing number". The teacher read out this instruction, reminded them of similar work they had being doing the previous day, and then left them to copy everything on the board, including the written instructions, into their exercise books. The teacher then turned her attention to Grades 5 and 6. Once they had been given their work she walked back across the classroom to the group copying the fractions and began to call them to the board one by one to complete fractions. The other children watched and copied so that at the completion of the lesson all the children had perfect answers.

In the second classroom in San Jose the Grade 2 had settled down to copying and completing 2 X table multiplications from the blackboard which kept them occupied for an hour. Meanwhile, Grade 1 worked with the teacher from a colourful poster of a huge grand piano, repeating words which were printed below in Spanish. While the teacher focused most of her attention on this language lesson, she was at the same time overseeing the work of the four Initial Grade students who were restlessly copying over and over again the four words which she had written into their jotters in cursive script

(Aikman 1994, Appendix C).

So, despite the possibility of "unitary" teaching prescribed by the national curriculum, the teachers continue to organise their work as though they were teaching mono-grade. They move continually from one discrete group of students studying one subject to another group, often engaged on a completely different lesson.

NGO teacher training programmes

Where schools have no supervision and local authority and training college staff never visit, personnel from educational institutions and training colleges have no idea of what it is like to teach in a school in an indigenous community (Heise 1987). Moreover, they have little experience of poorly equipped multi-grade classrooms, as their experience pertains mostly to the relatively privileged urban settings surrounding the training colleges. An exception to this situation, however, can be found in some of the NGO teacher training programmes set up specifically for training indigenous, and bilingual intercultural teachers in the Amazon region. These include programmes such as the Programme for Intercultural Bilingual Education in the Alto Napo River; the Bicultural and Bilingual Experimental Education Project for the Ashaninka of the River Tambo run by the Amazon Centre for Anthropology and Applied Practice (CAAAP); and the Association for the Development of the Peruvian Rainforest (AIDESEP) and the Instituto Superior Pedagógico de Loreto (ISPL) programme for training indigenous teachers in intercultural bilingual education.

These programmes acknowledge multi-grade teaching as an integral and important characteristic of the teaching situation in rural schools. Because these programmes have been set up specifically for indigenous teachers, one- and two-teachers schools, lack of teaching materials, lack of formal training, absence of supervision and distance from urban centres become central foci of the programmes. Multi-grade indigenous community schools are not considered remote and low prestige. Furthermore, solutions to the neglect in these schools and communities are sought at the local level and in the schools themselves.

The AIDESEP/ISPL Teacher Education Programme

The AIDESEP/ISPL programme has been designed by and for indigenous Amazon teachers working in communities with the same linguistic and ethnic background. An important part of the training course is the production of a new primary curriculum by the trainee designed to suit the indigenous communities and their particular situation. This includes a new pedagogical approach to multi-grade teaching, methodology and classroom practice. It is in multi-grade classrooms in small one or two-teacher schools that the trainee will be most free to introduce and trial his/her new curriculum during the final three years of this training course. Over this period the trainee will carry out teaching practice with on-site support and supervision from a local team of trainers comprising educators, anthropologists, linguists and community members. Unlike other training courses the NGO programmes emphasise the importance of the college coming to the trainee rather an overwhelming emphasis on in-college work.

The new curricula which students on the AIDESEP/ISPL course are each developing focus on problems and issues which are significant for the indigenous community and avoid 'fragmenting the indigenous reality and view of the world by dividing knowledge into discrete subjects' in a manner alien to the society (see Trapnell 1990; 1991). Similarly, they aim to avoid fragmenting students into discrete autonomous grades which do not reflect the way children learn within their indigenous society and makes poor use of both student and teacher ability and potential.

Though there is still very little direct reference to multi-grade teaching in the reports and articles concerning these new NGO programmes, they break from the centralised, graded and highly authoritarian primary teaching methods and rigid curriculum propagated by the Ministry of Education. This break suggests that in the future multi-grade teaching may be given more explicit recognition in teacher training in both NGO and Ministry of Education programmes, and that multi-grade classrooms may be recognised as a new potentially rich learning context rather than an unavoidable setback.

Sri Lanka: Approaching multi-grade via multi-level teaching

Sri Lanka has a highly developed system of education and enrolment in the primary cycle is near universal. However several types of social and economic disadvantage remain and multi-grade schools are associated with some of these. Multi-grade schools are most likely to be found in remote rural areas where access is difficult, population sparse and the living conditions for teachers unattractive. They are to be found in both the Sinhala-speaking and Tamil-speaking rural areas. In some types of disadvantaged areas, for example, the Tamil-medium schools in

plantation areas, shortages of qualified teachers mean that multi-grade teaching is the norm. The government policy of a minimum of 3 teachers per school, however small, is sometimes not implemented. Even then, with a five-grade national curriculum some grades will be treated as multi-grade. Although the percentage of one-teacher schools has decreased from 5.6% in 1986 to just 2% in 1991, the percentage of schools where there are multi-grade classes will be far higher - estimated to be 24% in 1986 (Abhayadeva 1989). Many small schools cover more than the five grades of primary, sometimes six, sometimes eight. A UNICEF report, written in 1987 commented

> such schools generally cater to disadvantaged populations in rural areas whose earnings are low and unstable... In addition to paucity of teachers, such schools have inadequate physical facilities, equipment, books and are neglected by the education system in regard to maintenance, repair and supervision.They remain in a state of suspended animation. They are charged with providing education to over a quarter of million children.. Since there are only one or two teachers per school of five grades, no teaching occurs for many children over large portions of the year
>
> (Ratnaike 1987)

The national primary school curriculum in Sri Lanka is oriented towards mono-grade schools. A number of changes have been introduced recently to the content of the grade 1 and 2 curriculum, in recognition of the low levels of basic number and language skills with which many children in disadvantaged areas enter primary school. However, these changes continue to be framed within the assumption that primary schools are organised on mono-grade lines. The organisational realities facing the multi-grade teacher are not readily addressed in the formal guidance of the primary school syllabus, teachers' guides, textbooks, pre-service and in-service training. The following notes from the author's field diary illustrates the problem

an unannounced visit to a tea estate school. The school has 168 children enrolled in grades 1 to 6 and two female teachers.The principal teacher has nine years experience and followed her formal training through the distance mode. She lives in the estate. The other teacher travels daily by bus from a small town ten miles away. The bus is infrequent and usually late. Already it is 8.30 am and the school has been in session officially for one hour. Grade 1 children sit quietly outside the one-roomed school under a shed-like construction with no roof. The morning sun forces them to take shelter on a lower terrace under a roughly constructed thatched enclosure. None of the grades has been set any work and the children sit expectantly, their unopened books in neat piles in front of them. The enrolment register has been checked. This morning one hundred children have turned up for school, an attendance rate of just 61%. Although we wish to spend fifteen minutes or so with the teacher discussing a recent inservice training which she attended recently, we suggest that the students be set some work before we do so. The teacher moves quickly around the grade groups crammed inside the single classroom and grade 1 outside, giving instructions, opening books, writing exercises on the blackboard. Three male monitors, apparently self-appointed, dart around the six groups, distributing verbal punishment here, physical punishment there. A grade 3 girl takes an envelope out of her satchel. It contains small picture cards of animals and flowers. Two boys snatch one each, a squabble ensues, the monitor intervenes, peace is restored and they await more attention from the teacher. The grade 2 children have been set language work. One child reads out one or two words from the set book, the others repeat in unison. All the grade 2 children have a language book, distributed as part of the government's free text book scheme. Although all participate in the chant, and although all are holding a copy of the relevant book, not all are reading the words. It is enough to hold the book and repeat the chant.

The male kangani stands outside looking in. He is an elderly man paid to shepherd the children one and half miles from the estate line-room where they live, through the tea fields to the school, and back home each day. He is paid Rs 250 (£4) a month by the parents for this work. His stick is poised, ready to intervene should the classroom become too unruly.

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By 9.00 the bus has arrived and the second teacher joins us. We discuss various activities and suggestions made during the recent in-service seminar on health. Both teachers had also attended an in-service training course for teaching methods in the lower primary grades. One two hour lecture had been devoted to multi-grade teaching. What could they remember from it? They remembered a discussion about introducing a topic common to all grades. For example the topic could be fruits. After introducing the topic different grades of children could be asked to engage in different activities based on this common theme. For example grade 1 children could talk in small groups about the fruits they eat; grade 2 could write out single names of fruit and compare fruits in different ways; grade 3 could compare fruits for their vitamin value.

Although it was clear that the in-service seminars had generated ideas in the minds of the teachers it was more difficult to judge whether these were being transacted at the classroom level. The teachers had made a large number of learning and teaching aids at the in-service training sessions and were able to produce these from the store cupboard to show us. But none was in use during the one and a half hours of our visit.

Teachers may be encouraged at in-service seminars to experiment with multi-grade teaching methods in their classes. However this expectation is paradoxical. Those teachers who find themselves in schools which force them to adopt multi-grade methods are not only teaching in the most disadvantaged economic and social conditions, but they are themselves the most disadvantaged teachers in terms of education, level of training, status and, often, social background. Professional support from the central curriculum and administration authorities is based on an assumption of mono-grade organisation. Curricula are developed with an image of a relatively well-educated and trained urban teacher in mind. The adaptation of national curriculum materials, the reorganisation and structuring of timetables and groups, the creative use of space and the management of time are challenges which the lesser educated and lesser trained person is expected to confront and master. The more educated and trained teacher simply works within the norm and is not expected to make major intellectual adaptations.

In recent years, two developments, one stemming from the National Institute of Education, and the other from the Ministry of Education, have acknowledged the pedagogic value of multi-grade organisation. However, their approach has been via the needs of mono-grade teachers and the recognition that there are multiple levels of ability within single grades.

National Institute of Education: the development of multi-grade and multi-level teaching strategies

One approach to multi-grade teaching is to link it with the ideas of multi-ability or multi-level teaching. The general idea is that, even within a grade in the dominant mono-grade structure, there are wide differences in competency in the basic skill areas of language and mathematics. In a useful paper on the development of multi-grade and multilevel teaching strategies developed at the National Institute of Education, Abhayadeva (1989) underlines the point that the multi-grade teaching strategy should be

> a feature even in regular situations with a teacher per grade... (and that) a single grade with multi-levels could be conceived as operating in a multi-grade context
>
> (Abhayadeva 1989)

Abhayadeva supports her case with reference to data on language and mathematics competency at entry and exit from grade 1. Using data from a large-scale survey of

competencies she constructs a distribution of competency in writing movement coordination and concepts of quantity for a class of 40 students. Competency levels are assessed at five levels of mastery. Table 3 suggests that there is a wide distribution in both skills among those who enter grade 1. Although the range of variation reduces a little as children reach the end of their first grade of schooling, in the sense that larger numbers approach mastery on this particular skill, the variation remains marked. In principle the majority of children who reach the end of grade 1 should have achieved mastery or close to mastery in these skills. In practice less than half are doing so in the basic concepts of quantity.

> Competency levels in quantity show that for more than half... learning activities should be geared at a lower level... a multi-grade organisation... would be beneficial... some of these students would need more than one year, 18-24 months or perhaps even longer to attain competency in a given grade specific curriculum. Sri Lanka has approached almost full enrolment at Year 1. However grade repetition is found at each grade level with year 2 having the second highest rate of repetition.. The cumulative effect of learning problems mostly caused by the necessity to adhere to a grade-wise curriculum is revealed by continuing repetition rates which has reached its highest in primary for year 4. Grade repetition and the accompanying sense of failure leads to early school dropouts. It becomes difficult to maintain the momentum reached by achieving full enrolment at school entry.

Table 3 Distribution of competency in writing and mathematics, grade 1, Sri Lanka

Competency level	Writing movement		Quantity	
	at entry	end of Gr.1	at entry	end of Gr.1
not started mastery	0	0	1	0
started mastery	2	0	16	5
halfway to mastery	24	8	18	18
close to mastery	10	20	4	8
mastery	4	12	3	9

source: Abhayadeva 1989

Abhayadeva (1989) suggests that these data have several implications for organising or grouping children :

> for example there are 32 (24+8) halfway to mastery at entry to year 1 and at exit.. and there are 30 (10+20) at close to mastery level and another 16 (4+12) who have mastered (writing movement). According to the data those at halfway to mastery would be struggling to copy shapes of letters while those who have mastered would copy (or write) letters with ease. Perhaps a non graded approach where all children need not necessarily be transferred to the next grade at the end of the year, will help certain children to overcome some of the learning problems encountered due to competency level... a flexible approach which reaches out to different and parallel competency levels in adjacent grades would require reorganisation of the graded structure at least in the first two or three years of the primary school

It is clear from this that a multi-grade approach is being advocated for children at the beginning of the primary cycle. In other words, teachers in mono-grade schools are being urged to reorganise their work along multi-grade lines, rather than the reverse.

The practical steps which have been taken to date to effect some of these ideas include the establishment of a pilot project in 20 schools carried out by the Primary Education Project of the National Institute of Education in schools under the UNICEF-assisted programme for quality development of primary education, the long term objectives of which include exploring the possibility of using multi-grade teaching in "normal" classrooms and in large mono-grade schools and incorporating the experiences in a guide for teachers, and to introduce multi-grade teaching as a component of pre-service and in-service education.

The Ministry of Education's Plantation Sector Education Development Programme (PSEDP): Self-Study materials and Graded Learning

Since 1987 the Ministry of Education in Sri Lanka has run a programme of support to primary education in the tea and rubber estates. Until fairly recently estate schools had been managed and "owned" by plantation companies. They were connected with the National Ministry of Education through a grant-in-aid system in which schools were subject to an annual inspection and award of grant based on academic achievement. During the 1970s these schools and their teachers began to be "taken-over" by the state and incorporated fully into the state system. In 1984 there were 558 estate schools, with a total of 63,389 students and 1,148 permanent teachers. Thus the average student-teacher ratio was 55:1. A large proportion of the schools had only one teacher.

A programme initiated in 1987 was designed to upgrade the estate schools, most of which covered the first six grades. The objectives were to increase enrolment and to improve the quality of education. Although the majority of schools are in fact multi-grade, the student population in many of the estate catchment areas warrants a mono-grade structure were universal enrolment is to be achieved. Hence priority attention was given to stimulating enrolment and attendance among the school-age population, stimulating the supply of teachers to teach in the Tamil - medium and upgrading teacher performance through inservice training and on-site support from teacher educators. To have started from the multi-grade reality would have been unwise, for it would have distracted attention away from the more fundamental problems facing children in the estate community - large numbers of children dropping out from primary, too few teachers and too many untrained teachers. Gradually, and as some of those problems are being met, more attention is being given under the programme to appropriate pedagogy for groups of 40-50 children, (i) through the development of self-study materials and (ii) the encouragement of a graded and individualised approach to the learning of reading. Both strategies can support multi-grade teaching as well as multi-ability teaching within a mono-grade structure.

Self study materials

In 1993 PSEDP embarked on a programme of development of self study materials in the Tamil language for use by students in years 3-5 of the primary cycle. The idea for this programme arose out of concerns expressed

by the teachers and teacher educators of PSEDP

> shortage of teachers, lack of additional learning material and variation in comprehending ability of the learners, especially in the primary cycle, are a few of the reasons of slow achievement in language and mathematics. Also due to these factors slow learners or low ability groups were generally left behind and at the other extreme the learning needs of fast learners or high ability groups are not catered for. This situation leads to the necessity of identifying and developing learning material which would make learning interesting and encourage the learner to face challenges in learning.
>
> (PSEDP workshop report 1993)

The development of the materials involved a number of well planned steps and a methodical built-in evaluation of the materials before their mass production. The steps were as follows:

> **Step 1** A 5-day workshop was held at a school, organised by a teacher educator from the Ministry of Education and a resource person from the National Institute of Education. The other resource persons were the teachers themselves who identified problem learning areas in language and maths, designed preliminary materials, tried them out in the school in which the workshop was being held, revision and grading of achievement level.
>
> **Step 2** The materials were then tried with a large sample of children in plantation sector schools. An assessment format for the try-out was devised, experienced teachers trained to conduct the try-out and data collected is analysed by and with the teachers who have conducted the try-out. The analysis was conducted in terms of the percentage of children who gained correct answers, plus a listing of the different types of error made those who gained incorrect answers.
>
> **Step 3** On the basis of the analysis the materials are revised by the teacher educators and teachers. After revision the materials are typeset, mass produced and laminated for durability of use. Several hundred self study "cards" have been produced to date.

A Graded Approach to the Learning of Reading

The second example within the PSEDP is the development of a graded approach to reading. A teacher educator involved in the scheme described the idea and the follow-through

> We had been talking for some time about reading skills,. All the teacher supervisors in the group agreed that the reading ability was low. When we discussed the problem with the teachers they always said, simply, "children are not interested, they do not have the ability". Teachers never seem to acknowledge that they can improve their practice.
>
> We decided to send formats to every school and asked them to do compulsory evaluation of reading... each child was graded A-E. We specified the criteria. We then asked the teachers to use the Tamil reader and other story books. We discovered, after the first assessment, that there were some children in the upper classes who were extremely weak in their reading. The teachers had not been giving them any remedial activity. We suggested that they should ask these children to go back to the year 1 and year 2 reader.

When asked whether she thought that the testing *per se* was responsible for the improvement in reading standards or whether the intervention comprised a number of elements the teacher educator explained

> As supervisors we showed an interest in the reading and showed the teachers how to do their own evaluation using the criteria. We started the evaluation in June (1993). Some teachers have done the evaluation three times, others four times by now (February 1994). We believe that if change is coming about it is because of several things. We are helping the teachers become aware of the individual difference in levels of reading skill. We think that the testing itself may be

having a motivating effect on the students and the teacher. We are suggesting that story books as well as the official reading book be used with the children. We are supplying schools with extra reading material through our mobile library. And of course we ourselves are showing an interest in the reading abilities of the children. All of these things are happening at the same time. We cannot say which is the most important factor. But we are using the teachers' assessments of the levels judged against the criteria.

Although the teacher-educator and her colleagues requested all the schools in the areas for which they were responsible to do the compulsory testing, they decided to "study in a systematic way the improvement in 10 schools, selected randomly".

Some of our results are as follows: In school 1 there have been three testings. The percentage with A grade increased from 0% to 21%; the percentage with E grade decreased from 35% to 7%. In a second school there were five year 5 children who could not read at all. We started them off with the year 1 book. After 6 months two of the five got their promotion to year 6; they were able to read at the year 5 level. The other three did not reach the level and will repeat the year.. but they will catch up. In another school we found that when we tested in March there no D's and quite a few A's, but when we retested in June, we used a different book but of about the same level, not the set Tamil reader. This time there were no A's. We felt that the children had been memorising the set book and were unfamiliar with reading anything that was outside the set book. We recommended the use of story books as well as the set book. We are helping them find the extra books through our mobile library.

This is a grassroots example of teachers and teacher educators working together to identify differences in the pace at which children in the same grades are learning. Traditionally, reading is taught through whole grade groups reading out aloud from the same text; the set text is often the only book available in the classroom and the home. The identification of individual differences in reading has been an eye-opener for many teachers, especially those who are untrained. The realisation that additional reading materials can be developed at low or no cost and that supplementary story books can be made available on loan is transforming the work of the teacher and the learning experience of the student.

Although neither the self study materials nor the reading project arose primarily out of a need to find solutions to the problems facing the multi-grade teacher, clearly the materials and approaches being developed are appropriate for both the multi-grade and the mono-grade teacher.

The IMPACT System of Mass Primary Education

During the early 1970s the Regional Centre for Educational Innovation and Technology (INNOTECH) , based in Quezon City in the Philippines, devised a radical approach to rural education. Known originally as the "no more schools" concept, it proposed to replace schools, textbooks, teachers and grades with learning centres, self-instructional materials, peer, tutor and community support and instructors responsible for the management of learning among groups as large as 150-200 students. Over time the concept became better known as Instructional Management by Parents, Community and Teachers (IMPACT). The innovation began in the Philippines and Indonesia, spreading subsequently to Malaysia (INSPIRE), Jamaica (PRIMER), Liberia (IEL) and Bangladesh (IMPACT).

The rationale for the "no more schools" concept and the components of a new system for the delivery of education are presented by Cummings (1986). The original rationale was based on the educational conditions

facing much of South-east Asia in the early 1970s

> one-half of rural children in Southeast Asia do not complete more than 4-5 years of school and, due to a projected rapid population growth rate, this situation is likely to worsen. Shortage of classrooms, considered one of the major causes of the low educational attainments of rural youth, is unlikely to improve because overstrained national education budgets will not be able to fund many new places at existing unit costs. The inflexibility of conventional school schedules, which causes children to miss lessons, fall behind, and eventually dropout, is another reason for low educational attainment. Thus to improve rural education, a new delivery system needs to be devised with a more flexible schedule and lower student costs. Since teachers make up 80-90% of unit costs in conventional schools, such costs can be reduced by increasing the student-teacher ratio and supplementing teacher supervision with assistance from students, parents, and community resources. Self instruction, relying on programmed instructional materials, can be another means to reduce costs and, moreover, enable greater flexibility in scheduling individual learning.
>
> (Cummings 1986:6)

Although there is no explicit reference to multi-grade teaching in the rationale, many of the schools which were subsequently to participate in the innovative system were multi-grade schools with fewer teachers than grades. The greatest early success of the project was experienced in central Kalimantan and Sabah, island provinces of Indonesia and Malaysia, where one-teacher primary schools were common and where teachers experienced difficulty in using the conventional texts and materials designed with the mono-grade primary school in mind. As we shall see below the components of the delivery system could be adapted to the multi-grade school.

IMPACT System Components and Principles

Although the details of delivery programmes were developed in the field and were to take on a different form in different settings there were some common elements. The original "no more schools" concept envisaged a delivery system based around personnel, instructional materials and instructional organisation

Personnel

-in place of the conventional teacher, an instructional supervisor able to manage up to 200 primary students

-community members, enlisted on a voluntary basis, to provide instruction in particular life skills

-primary-school graduates, provided modest pay, to give courses in reading and other academic subjects

-parents to take responsibility for motivating their children and monitoring their progress

Instructional material

-the use of modular instructional materials, with many of these materials being self-instructional to allow children to proceed at their own pace

-instructional radio programme sessions to supplement the written material

Instructional organisation

-the primary mode of learning was to be self-paced, individual instruction under the guidance of tutors and the instructional supervisor. This mode could be supplemented, where appropriate, with group sessions

-a simplification of organisational procedures with no specific age required for entry to the community centre, few set class periods during the day, no prescribed schedule for completing modules, and no individual grades maintained other than a record of completed modules

Over time, and as delivery systems were worked out in detail in different settings, several principles of the IMPACT system began to emerge. These are described by Respati and Mante (1983:9-14), two of those intimately involved in the development of the idea in Indonesia and the Philippines. They are presented in a slightly adopted form below.

The subject of education are children of primary school age

the Impact system is open in character. It does not close off the opportunity to the children to study although they may have dropped out of primary school. All children of primary school age can effectively follow the primary school curriculum from the start until they finish. School dropouts do not stop learning. They can go on studying till they finish and gain the elementary school certificate.

Learning materials are based on the current primary school curriculum

learning materials are based on the approved curriculum of the school system. The fact remains that the students of IMPACT schools are still governed by the requirements of the system such as the successful passing of official examinations

The essence of education is the learning process

Education in the IMPACT system, through the intermediary of modules will encourage children to learn by themselves. There will be a minimum of exhortation. Instead, the process will throw the child right into situations that will require him to learn by himself.

Learning can take place anywhere

learning (takes place) anywhere - not only in the classroom. The attitude that dropouts inevitably will cease to learn, or that graduation terminates the learning process is contrary to this principle and, therefore, must be changed. The school building is merely the centre of learning from where guidance, material and resources may be derived. In the countryside where the dropouts and adults may have easy access, learning posts are established.

Multiple Entry and Exit

The principle of multiple entry and exit will help solve the problem of dropouts by meeting them half-way, by literally allowing students to enter when they wish or when it is most proper for them, to leave at the most opportune time and obtain the elementary education certificate.

Progress based on mastery and individual speed

Children will not be forced to proceed at a pace beyond their capacity and readiness. On the other hand they will not be hindered when they are ready and capable. This principle recognises the concept of individual differences quite realistically. The children learn by themselves and pacing is individual. The basis of progress is mastery.

Education is a socialising process and provides leadership training

Children of today are citizens of tomorrow. Group learning is a primary mode of learning. Older ones act as tutors or "programmed teachers" to the younger ones. In peer groups children assist each other.

Education is the responsibility of parents, the community and the government

Teachers are not the only source of education. The acceptance of the responsibility of education by parents, the community and the government is crucial. In the conventional school system, the participation of the community is chiefly financial. In the IMPACT system, community participation is more substantial and technical. Parents are encouraged to monitor their children's progress, to assist them through tutoring in their studies if they are capable.

The teacher as the manager of the learning process

The teacher's duty is to direct and manage the learning process. The teacher will no longer do much direct "teaching". She will be expected to exercise a different role - that of managing all the resources of the school, all the sources of education and ensure that the children is benefited maximally - hence the designation "Instructional Supervisor".

(Respati and Mante 1983: 9-14)

Although these components and rationale underpinned the early "no more schools" concept, the specific objectives and components of innovations varied from place to place. Cumming's summary (1986:19) suggests that the objective of improving education quality was common to all six projects, whereas that of lowering the unit cost of schooling was common to the Philippines, Liberia and Bangladesh, but not Indonesia, Malaysia or Jamaica. The shift in the teacher's role to instructional supervisor and manager of the students learning through self-instructional modules characterised the programmes in the Philippines, Indonesia, Liberia and Bangladesh but not in Malaysia and Jamaica. In Jamaica and Malaysia greater emphasis was placed on the development of instructional guides and aides. All the countries divided class groups into small groups but they varied in the extent to which they encouraged cross-age and peer tutoring, programmed learning and differential pacing.

In terms of the challenges facing those who work with the multi-grade teacher two features of the IMPACT experience stand out. The first is the quality of materials, which was particularly high in the Malaysian and Liberian cases. Of the Malaysian materials Cummings (1986:85) writes

> a teacher with a minimum of preparation could successfully fill virtually every classroom minute with interesting and attractive activities. The teaching guide tells the teacher what to prepare before class; how, in the first few minutes, to recall old material; and how, in the next 20-30 minutes, to present new material. For the remainder of the period, the teacher is able to lead slow learners through a special drill with attractive instructional aids while the other students work on self-instructional worksheets. The instructional kit also provides periodic tests.

The second is the preparedness of the teachers and their support team to innovate in school organisation and classroom management (Cummings 1986:86).

> In the Indonesian experiment, one is especially impressed with several of the innovations affecting classroom management. In the lower grades in all the experiments, students tended to proceed at more or less the same pace under the management of their teacher. However, in the upper grades, as the students turned to self-instructional modules two problems emerged: boredom and differential pace...the first innovation developed was peer-group learning, wherein three to six students at the same grade level would form a group to study modules together.. modules were revised to assign distinct roles to a peer-group leader.. the position of group leader could rotate among the members. While these innovations alleviated boredom, differential pacing remained a problem. As the Indonesian project team became more familiar with the principles of mastery of learning, they began to introduce pre- and post-tests for each module and to insist that no group could move on to a new module until all members had achieved 90% on the post test... fast learners manifested a more helpful attitude towards those in difficulty, and the overall cooperative spirit in classrooms was considerably enhanced.

Conclusion

These five experiences of multi-grade teaching in developing countries have a number of common themes. All address educational problems in disadvantaged rural settings with low populations. All have involved teacher training in the techniques of multi-grade teaching at the local level. Some have succeeded in having multi-grade recognised by government as a legitimate area of enquiry for teacher educators and teacher trainees at national level. Others rely on the support of NGOs and teachers self help groups. The issue of cost has not been a dominant theme in any of the examples. The multi-grade strategy has involved a number of components besides teacher training. The design, reproduction and distribution of large

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quantities of self-study materials to support individual, peer and small group learning; a system of evaluating learning progress and achievement; and forms of internal school and class organisation which establish routines for students independently of the teacher appear to be among the characteristics of effective multi-grade teaching and learning.

Chapter 3 Research Evidence on the Effects of Multi-Grade Teaching

Several summaries of the advantages and disadvantages of multi-grade teaching in developed and developing countries are available (eg Pratt 1986, Miller 1991, Thomas and Shaw 1992, APEID 1989). All stress a different range of positive and negative outcomes, reflecting in part the variety of human and financial resource contexts in which different educational systems operate.

In industrialised countries much of the debate about multi-grade vs mono-grade arises in the context of rural depopulation among communities which have already achieved universal enrolment in primary education. The policy objective lying behind the research is often the reduction of costs and the closure of small schools. Those who advocate cost-savings highlight the high costs of keeping small multi-grade schools open, the cost-efficiency of transporting children to adjacent schools and, sometimes, the negative achievement and social effects of multi-grade on students. Those who resist the policy stress the role of the primary school in the life of the community in general as well as the benefits, especially social, for the children who study in a multi-grade structure. Sometimes the debate is pedagogic; sometimes economic. Members of the teaching profession discuss ideal ways of organising all schools and not simply those serving low and declining school-age populations. Multi-grade teaching is presented as a powerful pedagogical tool for promoting independent and individualised learning. In England and Wales for example the 1966 Plowden report was influential in encouraging "vertical grouping" as an alternative to "horizontal grouping", especially across the first three grades of primary education. The pedagogical argument was based on the possibilities for social development as well as peer and cross-age learning among children aged 5-7 years.

In Newfoundland and Labrador in Canada the debate is contemporary. Some argue that multi-grade classrooms offer exciting and challenging arenas for learning, and viable sites for high quality education; while others cast multi-grade classrooms as "unfortunate remnants and reminders of times past" in which children cannot possibly receive an education equal in quality to that provided in mono-grade classrooms (Mulcahy 1993). In Sweden, the general attitude to multi-grade is positive and many primary schools appear to be adopting multi-grade teaching out of choice. The heads of the 35% of primary schools which engaged in multi-grade teaching in 1987/8 reported a range of initial motivations for adopting multi-grade teaching strategies. Forty four per cent said that there initial motivation was purely educational, 35% purely resource-oriented and 20% a mix of both educational and resource reasons (Malmros and Sahlin 1992).

The general debate in the literature from industrialised countries is usually couched in terms of multi-grade *versus* mono-grade. Furthermore, because there is a high degree of congruence between age and grade in educational systems in industrialised countries the terms multi-age *vs* mono-age appear regularly in the literature on multi-grade teaching.

In developing countries the debate also arises in the context of rural education and small populations, but these are often school-age populations which are growing rather than declining. General population growth and increased participation in schooling among communities which have not yet achieved universal access to primary education give rise to schools which tend to be located in areas where access to the next school is difficult, where facilities are already extremely limited and to which teachers generally do not wish to be posted. Because children tend to enter school at different ages and because promotion from grade is often non-automatic, there is often a lack of congruence between age and grade. The characteristics of comparison groups vary. Sometimes comparisons are made with mono-grade schools, sometimes only rural mono-grade schools, sometimes with schools which purport to be mono-grade but which have fewer teachers than grades and sometimes with schools where there is only one teacher for all grades.

Only rarely does the debate arise in developing countries as part of an educational discussion amongst teaching professions about the ideal way to organise schools in general, rather than in difficult rural areas. In general, multi-grade is viewed by the teaching profession as a second-class solution to educational problems which beset disadvantaged communities. Cost-savings often feature in the discussion, though usually in response to questions raised by agencies external to the country which are considering lending or aiding educational development. And, in contrast to the cost arguments rehearsed in North America and Europe, multi-grade is often presented as a strategy *for* rather than *against* cost-saving.

In the sections which follow, the findings from industrialised countries are separated from those from developing countries. Wherever possible the broader policy and educational context of the research will be noted. The majority of research studies located for this review focus on the cognitive and non-cognitive outcomes of multi-grade teaching for students and on the costs of multi-grade.

Cognitive Outcomes

North America

Evidence from North America on the cognitive outcomes of multi-grade compared with mono-grade suggests that children perform no better and no worse in multi-grade classes. Pratt (1986) reviewed thirty experimental studies conducted between 1948 and 1983 in the United States of America and Canada. In view of the high degree of congruence in North American schools between age and grade the multi-grade classes were described as multi-age classes. All the multi-age classes contained an age range of 2-3 years and the achievement variables studies were usually reading and mathematics scores on standardised tests. Pratt notes that

> many of the studies suffer from imperfect control of differences between teachers and schools which elected or rejected multiage grouping. Too few of the studies reported sufficiently complete data to allow more than a counting procedure for summation of the results.
>
> (Pratt 1986:113)

Of the thirty studies reviewed thirteen showed inconclusive results, ten favoured multi-age classes and five favoured mono-age classes. However, eight of these studies were doctoral dissertations which, Pratt argues, are likely to be relatively rigorous in their design. Five of the eight generated inconclusive

results, one favoured mono-grade and two multi-grade. Miller(1991) confirms this general picture with a review of twenty one studies from the US which suggested that students in multi-grade classes performed as well as students in mono-grade classes. The reviews of neither Miller nor Pratt contextualise studies in time or place.

England

Rather less research on multi-grade and mono-grade teaching has been reported from England. In a study conducted shortly after the publication of the Plowden Report advocating vertical grouping, Mycock (1967,1970) compared the academic achievement of children in two vertically grouped infants schools with two which were horizontally grouped. She found no difference between the groups in terms of vocabulary growth, reading accuracy and mathematical skill. Ford's (1977) review of the effects of multi-grade on cognitive development confirmed this. However both Mycock and Ford found differences in favour of multi-grade on a range of socio-emotional factors.

Further research was stimulated in the 1980s in response to a survey of primary education in England published in 1978 by Her Majesty's Inspectors (HMI). This survey was carried out at a time when a fall in the numbers of children entering primary school had led a number of school to adopt vertical grouping. The HMI report (1978) highlighted a number of problems with this type of class organisation and suggested that 9 and 11 year old children achieved more highly in mono-grade than in multi-grade classes. They also suggested that teachers in mixed-grade classes were less able to judge the ability levels of students and to match tasks to these levels.

The findings of the HMI were accepted uncritically by Government Ministers and used as a basis for national policy which rejected mixed-age classes as an acceptable form of classroom organisation (Bennet, Roth and Dunne 1987). Nonetheless, falling rolls continued and "headteachers found themselves in the invidious position of having to implement mixed-age organisation because of falling rolls despite educational and political pressure not to do so" (Bennet *et al* 1987:43). However, as Bennet *et al* point out

> it is always dangerous to base policy on the findings of one study since no piece of research is perfect, and the HMI survey was no exception. Four methodological problems are apparent
>
> 1. No attempt was made to differentiate between different kinds of mixed-age class; classes with a few children of a different age group from the majority were treated in the same way as classes containing equal proportions of children of three or four age groups.
>
> 2. Achievement scores were found to be significantly poorer in inner-city schools but HMI did not indicate whether there were more mixed-age classes in such schools. If there were, the link between mixed-age and achievement may not in fact be caused by mixed-age classes.
>
> 3. Assessments of the match of task and child were based on the judgments of a large number of HMI. Questions must therefore be raised about the consistency of such judgments and the criteria used.
>
> 4. Doubts must also be raised about the validity of the standardised tests used given the marked differences in curriculum which children follow...The extent to which the items of any test will match the actual curriculum taught will therefore vary widely.
>
> (Bennet *et al* 1987:43)

This study by Bennet *et al* study focused on the extent to which teachers were able to cater for the extremes of ability within their classes. The study examined in detail whether

teachers in twelve mixed-age and nine mono-age classes could provide suitable learning tasks for the three highest and three lowest ability children in their class. They found that teachers in all the classes tended to direct the content, level and pace of work towards the average, and, in consequence, underestimated the abilities of the high attainers and overestimated those of low ability. Although this finding confirmed a trend identified for some teachers in the HMI report it refuted the claim that teachers in mono-grade classes behaved any differently.

Colombia

In chapter 2 the characteristics of Colombia's *Escuela Nueva* - the New School programme -were described. Its key features are a multi-grade organisation allowing flexible, rather than automatic promotion, a rural-oriented curriculum and instructional materials designed for self study and individualised learning. An evaluation conducted in 1987 by the Ministry of Education in Colombia examined the achievement of grade 3 and grade 5 students in Maths and Spanish among a sample of 3,033 students drawn from 168 *Escuela Nueva* and 60 traditional rural schools. The traditional schools are described as mono-grade, following a national curriculum, providing no special attention to slow learners and not stimulating the students through special materials (Psacharopoulos, Rojas and Velez 1993, Colbert, Chiappa and Arboleda 1993). The mean scores showed that the grade 3 *Escuela Nueva* students scored higher in Spanish and Maths. Grade 5 students scored more highly in Spanish, but there was little difference in Maths. However, as Psacharopoulos *et al* (1993) point out, differences in gross means can disguise the effect of a wide range of factors on school achievement. The data were then reanalysed using an education production function in which a number of student, family, school and teacher characteristics were examined. These characteristics were

student - age, gender, repeater, works, hours watching TV
family - economic level of region, books at home, TV and radio at home, homework help
school - type of school, student-teacher ratio, electricity access, number of supervisory visits
teacher - gender, years of experience, educational background, residence and pay

Several of these factors had independent effects on achievement scores. For example, the scores of male students were higher than those of females in Maths; females performed better than males in Spanish; repeaters scored lower than non-repeaters. Higher scoring students were taught by university graduate teachers or by teachers who resided at the school. Nonetheless, taking all these factors into account, the effects of school type on the achievement of students - i.e. whether the student was enrolled in an *Escuela Nueva* or a traditional school - remained strong.

While the results of the analysis are compelling, several methodological puzzles remain. The first is the issue of "repeating". One of the variables in the model is repetition, and data are produced on repetition for both the Escuela Nueva students and "traditional school" students. The authors do not explain what repetition means in the context of *Escuela Nueva* where students work through self-instructional materials at their own pace. The second is the issue of comparison. Although the composition of teachers and grades in the traditional schools was not described by the authors, it appears that the comparison group consisted of students from at least three different types of school (i) unitary schools, with just one teacher for all grades, (ii) mono-grade schools, with one teacher for each

grade, and (iii) schools with fewer teachers than grades (Velez *personal communication*). However, the reported analysis did not distinguish the groups in this way, and it would seem important to know whether the benefits of multi-grade remain when compared with all three types of traditional school. Third, and related to the first, is the issue of selectivity of the students in the samples. Because *Escuela Nueva* enables students to advance on the basis of mastery of module learning units rather than an assessment across a whole year, students advance at different rates. One student may spend sixteen months covering the modules equivalent to grade 3 while another may spend only seven months covering the same work (Velez, *p.c.*). Advancement is determined by unit mastery. Certainly the higher average age of the *Escuela Nueva* students classified as grade 3 and grade 5 students is consistent with this possibility. We are not told how the *Escuela Nueva* mastery assessment system operates, but we do know in general that mastery-oriented schemes of assessment require higher levels of performance from each child than the norm-referenced assessments which characterise much internal school assessment. Is it possible then that the average achievement of students entering a new grade in the traditional schools will be lower than that of *Escuela Nueva* students because of the nature of the assessment? This is a fascinating possibility which deserves further exploration, not only because of its implications for the evaluation of *Escuela Nueva* and other multi-grade systems, but also because of its implications for assessment and achievement within primary education systems more generally.

Indonesia

A study of the Indonesian "small schools" project, designed to help multi-grade teachers, is reported by Bray (1987). He reports that of 1,300 primary schools in Central Kalimantan, 460 have only one to three teachers. Self-study materials were developed for grades 4 to 6 and other types of material were developed so that adult volunteers could work with some children, releasing the teachers to work with children with particular difficulties. He reports that "the project students performed better in most subjects than did other students" (Bray 1987:43). However the study is not referenced and we do not know the characteristics of the comparison group.

Other studies from Indonesia also report achievement gains arising from multi-grade teaching. A 1975 evaluation of *Proyek Pamong*, described in Chapter 2, compared the performance of seven *Proyek Pamong* schools with seven control schools in rural communities similar to those served by the Pamong schools. Students were compared on conventional district inspectorate tests and block tests linked with self learning modules. Before the experiment began there were no differences in performance between the two groups. Not surprisingly the grade 4 and 5 *Proyek Pamong* students performed better on the innovatory block tests. Grade 4 students also performed better on conventional tests designed by the district educational administration, and grade 5 students performed no worse (*Proyek Pamong* 1975). However a thorough analysis of several *Pamong* evaluations some years later yielded inconclusive results (Thiessen quoted in Cummings 1986). Cummings notes that

> with hindsight it is apparent that the tests used in many of these studies, being based on the conventional curriculum, did not adequately test the material taught on the PAMONG schools.

> Also, teachers in both PAMONG and non-PAMONG schools were known to manipulate scores.
>
> (Cummings 1986:90)

Philippines

Positive results from the Philippines Project IMPACT were reported frequently (eg INNOTECH 1978) but Cummings (1986:89) cautions readers to interpret the results with care. He raises questions about the background characteristics of the non-IMPACT schools and students used for purposes of comparison. The educational and socio-economic levels of the students attending IMPACT schools were generally higher than those of students in the non-IMPACT schools and the teacher characteristics more favourable. The cognitive achievement scores were generally higher for grade 4 students but showed no differences for students in the higher grades.

Non-cognitive outcomes

Much of the evaluation research referred to above also examined a range of non-cognitive outcomes of multi-grade teaching, including friendship patterns, self-concept and esteem, social development, work and school attitudes and civic behaviour.

North America

The non-cognitive outcomes examined in Pratt's (1986) review include children's friendships, self concept, altruism and attitude to school. Summarising the studies on friendship patterns he notes

> the general picture that emerges...is one of increased competition and aggression within same-age groups and increased harmony and nurturance within multiage groups.

Overall he claims that social-emotional development of children is either accelerated in multi-age groups or shows no difference. He located fifteen studies between 1948 and 1983 which studied the effects of multi- and mono-age grouping on socio-emotional variables, most commonly self-concept and attitude towards school. Nine of the fifteen favoured the multi-age groupings, none favoured the conventional grouping, while six were inconclusive. Reviewing in more detail seven doctoral theses he finds that three favoured the multi-age groups while four yielded inconclusive results. Miller's review (1991) also indicates a number of favourable outcomes of multi-grade teaching. Citing his previous review of twenty one quantitative studies he claims

> in terms of affective measures...multi-grade students out-performed their single grade counterparts at a statistically significant level.

He also reviews a number of qualitative studies which do not include comparisons with mono-grade schools. Among the positive benefits of multi-grade he cites social interdependence, independence, community involvement, self-reliance and cooperation. Ford's (1977) review lists a number of claims which have been made for multi-grade, among them

> a greater sense of belonging and confidence; relationships with a wider age range of children; well adjusted personality; good work attitudes and high aspirations; better teacher-student rapport; low stress; stronger self concept of older, slower students; and better personal and social development

Ford challenges a number of these claims through reference to studies mainly from the US, but also from the UK. She claims that the research findings are mixed on the

reduction of anxiety levels, friendship patterns, and on personal and social adjustment. She confirms support for more positive self concepts and greater self-esteem, benefits from a lengthened teacher-pupil relationship, more positive attitudes to school and better attitudes to work. However she also points out that there are important differences between the UK and the US practices of multi-grade which can influence findings. For example UK multi-grade classes tend to cover a wider age range than in the US, and pupils in UK multi-grade classes tend to spend more years with the same teacher.

England

Although Mycock's (1967) study of two vertically and two horizontally-grouped infants classes in England did not show any difference in measures of cognitive achievement, there were a number of differences in socio-emotional development. Children in the vertically-grouped classes experienced less stress on admission to school and a greater speed of socialisation into the school culture, a greater range of social interaction, better work attitudes, a closer and more secure relationship with the teacher and higher levels of aspiration on specific learning tasks.

Colombia

The Colombian studies referred to above also examined the effects of *Escuela Nueva* on measures of creativity, civic behaviour and self-esteem. Early evaluations had credited the programme with positive effects on self-esteem and civic behaviour, but had found no difference between students in the *Escuela Nueva* schools and the traditional schools on measures of creativity (Colbert *et al* 1993).

The more complex analysis of the same data performed by Psacharopoulos *et al* (1993) confirmed the positive effect for civic behaviour and null effect for creativity but not the positive effect for self-esteem. The factors which seemed to affect creativity positively were whether a student was older, had work experience, had not repeated a grade, had a TV at home, and was taught by a male teacher with higher pay, greater years of experience and who lived in the school. The factors which seemed to affect self-esteem positively were whether a student was older, female, a non-repeater, access to more books at home, was taught by a teacher without a university degree or by a teacher who lived in the school.

Indonesia

Cummings summarises the research from the *Proyek Pamong* experience in Indonesia and cites a study of the effects of *Pamong* on study habits, self confidence, initiative and cooperation. Although the study reported significant positive effects Cummings suggests that the analysis was flawed, making it difficult to draw confident conclusions about the effects of *Pamong* on the attitudes of students. Bray's (1987) brief account of the Kalimantan small schools programme suggested that children in multi-grade small schools working with self-instructional and programmed material were more self reliant than children in mono-grade schools.

The APEID Studies

The UNESCO/APEID study referred to earlier synthesised findings from country reports on multi-grade from twelve countries in the Asia and Pacific Region. The study listed four advantages of multi-grade teaching situations, all of them non-cognitive:

> students tend to develop independent work habits and self study skills
>
> cooperation between different age groups is more common resulting in a collective ethics, concern and responsibility
>
> students develop positive attitudes about helping each other
>
> remediation and enrichment activities can be more discreetly arranged than in normal classes
>
> (APEID 1989:5)

It is clear from the country reports that these advantages represent the views of conference participants and are not grounded in systematic study. At the same time it is important to note that they stress the non-cognitive advantages and make no claims for the cognitive. This is consistent with most of the findings reported above, save perhaps those of *Escuela Nueva*, which claims superior cognitive outcomes for multi-grade schools. The claims about independent study, cooperation and socio-civic behaviour attract some support from a few studies in the US and Colombia. However in general, systematic data on non-cognitive outcomes from multi-grade settings in developing countries are so few that it is difficult to substantiate the APEID claims through an appeal to research findings.

Thomas and Shaw's (1992:11) summary of the effects of multi-grade draws on some of the studies above but also includes studies from India, Pakistan, and Togo. Although their generalised claims are a little incautious, few could disagree with the gist of their concluding lesson

> although somewhat scanty, the evidence emerging from the developed and developing worlds leads to the conclusion that multi-grade schools are just as effective as single grade schools in educating students. In some cases, students have attained higher levels of achievement in academic subjects as well as in social-civic indicators than their single grade counterparts. Peer tutoring, repetition, self learning and improved opportunities for socialisation are important ingredients for success. More importantly students in multi-grade classes "learn to learn".

One may conclude that when programs are correctly implemented, students may attain higher achievement levels and improve social skills. But students in multigrade schools which fail to adopt effective pedagogical techniques tend not to perform as well as their counterparts in single grade schools. The lesson to be drawn from this is that in order for a multi-grade school work well teachers must master and use effective teaching practices, be supported through training programs, and have appropriate texts and materials at their disposal.

The Costs of Multi-grade

The high costs of maintaining small multi-grade schools in North America and Europe has often been used as a rationale for closing down small schools. The costs of transporting, and sometimes boarding students at mono-grade schools are offset by substantial savings on teacher and ancillary staff costs and maintaining buildings and lands. The need to reduce costs often leads to the closure of the multi-grade school. In developing countries, on the other hand, the cost argument is presented rather differently. Multi-grade schools offer cost-savings, especially in situations where school-age populations are growing. As Thomas and Shaw (1992:8) point out

> among the most obvious costs of setting up a multi-grade classroom are: furnishing and equipping the classroom, and providing self-learning materials and textbooks. Gains can be expected in terms of increased efficiency of the system resulting from lower repetition and dropout, and more efficient use of human and capital resources. It would not be unusual for expenditures in a multi-grade school to result in higher costs per student but lower costs per graduate, thus resulting a cost-efficient option.

The approach becomes cost-effective when it results in increased achievement.

The few studies of the costs of multi-grade have almost always been conducted in the context of foreign-funded support for education and most appear to indicate that multi-grade is not a high-cost strategy for rural schools, especially when compared with mono-grade schools in similar settings (eg Cummings 1986:91-92 Psacharopoulos et al 1993:275, Colclough with Lewin 1993:130-2,138). Psacharopoulos *et al* (1993) point out that the quality benefits of the *Escuela Nueva* programme were achieved at a unit cost per student just 5-10% higher than those in traditional rural schools. They urge a degree of caution in interpreting this result, and point out that a full cost study has not yet been carried out. The cost of teacher training in the *Escuela Nueva* programme for example was three times higher than traditional teacher training.

However the nature of the comparison is important when evaluating results and comparing within and across countries. For example, should the cost and quality benefits of multi-grade in the *Escuela Nueva* programme be compared with traditional rural primary schools in Colombia, or with schools in urban centres ? (Colclough with Lewin 1993:138). Or should the benefits of multi-grade be compared with the outcomes for children not attending school at all, a possibility which, in some countries, remains distinct.

Chapter 4 Implications for the Practice of Multi-grade Teaching and Further Research

Researchers on multi-grade teaching are unanimous on at least one point. For children to learn effectively in multi-grade environments teachers need to be well organised, well resourced and well trained, as well as to hold positive attitudes to multi-grade teaching. Yet, as we have seen in previous chapters, many teachers who find themselves teaching in a multi-grade environment are frequently under-resourced, and are often the most under-educated and under-trained members of a national teaching force. In this chapter various pointers to action to improve the effectiveness of multi-grade teaching are drawn together. Four documents are particularly useful in this respect. Collingwood's (1991) *Multiclass Teaching in Primary Schools* is a handbook prepared with and for teachers in the Pacific region, with support from the UNESCO Office for the Pacific States. It is extremely well presented and could be adapted for use with teachers in many countries. Abhayadeva's (1989) account of a pilot project in Sri Lanka, carried out with assistance from UNICEF, sets out a number of pointers to action which have emerged at the classroom and teacher level. The UNESCO/APEID (1989) synthesis of country reports also offers advice at this level, but goes further and sets out implications for curriculum planning at the district and national levels. This multi-levelled approach is also adopted in Thomas and Shaw's (1992) *Issues in the Development of Multi-grade Schools*.

Since there is a degree of overlap in the lengthy recommendations which are made in the four documents they will be summarised and synthesised here in the form of questions, a format which may be useful both in work with policymakers and practitioners, and in defining developmental research work in this area. To these will be added additional points which arise from the case-studies and research studies presented in chapters 2 and 3.

Although we could start with a series of questions for the teacher in the classroom and work out from there, those initiatives which have had far reaching and lasting effects on the multi-grade classroom appear to have received support from district and national level authorities. Experience suggests that the multi-grade teacher cannot, and indeed should not, be expected to solve the problems of the multi-grade classroom alone. Hence, the list begins with questions for the national-level policymaker.

National Level

1. What is the extent of multi-grade teaching in the country? In what types of schools, and in what locations, is it prevalent?

2. Do the enrolment projections and costs of provision suggest that multi-grade teaching will continue in many schools?

3. What are the qualifications and educational backgrounds of the teachers who teach in multi-grade settings? What are the conditions under which they work?

4. Do nationally-prescribed pre-and in-service teacher training programmes (both face-to-face and distance) include content on

effective teaching in multi-grade settings? Do they include content on effective teaching more generally eg self-study, peer learning, planning and organisation, alternative ways of grouping students for learning assessment skills?

5. Is multi-grade teaching a recognised field of specialisation in teacher training institutes?

6. Is there provision in nationally prescribed teacher training curricula for the practice as well as the theory of teaching in multi-grade settings? Are there model schools practising multi-grade teaching?

7. Have multi-grade techniques been considered for use in mono-grade settings?

8. Are there material and professional incentives for teachers in multi-grade schools in difficult locations? (eg salary supplements, housing, training opportunities, promotion prospects?)

9. Have attempts been made to structure the content of the national curriculum and all associated curriculum materials (eg syllabi, teachers guides) in a way that supports multi-grade teaching (eg integrated subject matter, i.e. teaching the same subject at different conceptual levels; or a modular curriculum, i.e. allowing the student to proceed at his/her own pace through learning modules)? Have such attempts attracted serious support from national-level research and curriculum institutions over a period of time?

10. Have self-study materials been developed for extensive parts of the curriculum? Do these incorporate self-correction and feedback? From which age /grade can they be used? Could textbooks be designed to support self-study ? Are textbooks and self-study materials available to students in adequate numbers?

11. Could national-level learning assessment schemes (eg minimum levels of learning (MLL), minimum levels of competency (MLC)) be used to support the development and structure of curriculum suitable for the multi-grade setting? Do such schemes have implications also for the mono-grade classroom?

12. Have or could adequate resources been allocated to libraries and other materials necessary to support self-learning?

13. Is it practical/feasible to use radio/TV in support of the multi-grade teacher, both in the classroom and in the community i.e as a medium for student learning in the classroom, and as a means of mobilising community support for this way of organising schools and classrooms?

14. Is there an adequate budgetary commitment from government to support multi-grade schools?

15. Is there an understanding among national-level professionals and administrators of the cognitive and non-cognitive benefits of multi-grade teaching? Does more research need to be conducted?

16. Is there an effective mechanism for the regular supervision, monitoring and evaluation of multi-grade schools? Are supervisors supported in their work through training and through materials developed by/with them? Are supervisors expected to "police" as well as to "professionally guide" principals and teachers? If so, how are they expected to handle the conflicts inherent in the duality of the role?

17. What are the recruitment criteria used to select supervisors of multi-grade schools? Do they have any experience of teaching at the primary level, let alone multi-grade primary?

How might they gain this experience? What steps might be taken to promote into multi-grade supervisory positions those teachers who have demonstrated prowess in multi-grade teaching?

Regional/District Level

Systems of education vary in the division of roles and responsibilities between national and sub-national levels of administration. Consequently many of the questions listed above may apply equally to policymakers and practitioners working at the regional or district levels. The following may also apply.

1. Are there mechanisms in place at the regional and sub-regional levels which can support the pedagogy of multi-grade teaching? Are there resource centres where teachers can meet and share experiences? Are there regular and frequent newsletters developed *by* multi-grade teachers *for* multi-grade teachers? Are there local radio networks and/or distance learning schemes which can support the teacher in the field?

2. Are there general guidelines on effective multi-grade teaching? Are guidelines developed with teachers on the timetabling of multi-grade teaching?

3. Are there administrative tasks which face the multi-grade teacher in difficult areas which could be handled more effectively by local education offices eg arrangements for delivery of materials, building repairs, monthly payments?

4. Are there ways of supporting horizontal linkages between schools so that teachers may learn from each other *in situ*, visiting and working in each other's schools, combining schools for cultural and sports events, competitions etc?

5. Are there ways of stimulating horizontal linkages with local community members so that assistant teachers and volunteers can support the work of the multi-grade teacher?

6. Are professional and regional level staff aware of changes at the national level which support the multi-grade teacher? (eg through changes in curriculum teacher training, criteria for promotion etc?)

7. Are there promotion and repetition policies at the regional level which are sensitive to the organisation of multi-grade classes?

Teacher/Classroom Level

1. Are teachers aware of the different ways of organising the multi-grade classroom? (eg subject staggering, subject grouping, common timetable, integrated day?) Are teachers able to discriminate between optimal ways of organising the teaching of different subjects?

2. Are teachers given guidance on syllabus coverage across the day, week, term, school year in multi-grade settings?

3. Are teachers familiar with the pedagogic advantages (both cognitive and non-cognitive) of multi-grade teaching? Are teachers able to convince parents of the advantages ?

4. Are teachers able and willing to encourage self-study and peer learning in multi-grade settings? Do teachers have access to an adequate supply of high quality materials for self-study and peer learning? Do teachers have the possibilities of creating their own materials for self-study and peer learning?

5. Do teachers have access to effective and practical means for assessing learning

outcomes in multi-grade settings on a regular basis? Do those assessments enable teachers to set learning tasks of an appropriate level for students on an individual basis?

6. Are teachers aware of the variety of ways of grouping students for learning (eg whole class, sub-groups, pairs, individuals?) and of different criteria for subgroups (eg by achievement, interest , friendship?

7. Have teachers established classroom routines so that learning may continue even in the absence of the teacher (eg through the use of student monitors and access to self and group-learning activities?)

8. Are teachers sensitive to alternative ways of using space and arranging resources inside and outside the classroom for multi-grade groups?

9. Are teachers able to request support from higher levels of authority for problem-solving in relation to multi-grade teaching?

These questions may be regarded as a checklist of use in both assessing the present status and support for multi-grade teaching, and stimulating discussion at different levels of the education system about improved ways of supporting the teaching of the multi-grade teacher and the learning of the multi-grade student. As well providing a useful framework for dialogue between policymakers and practitioners, each could also usefully provide a framework for further developmental research.

The questions pitched at the level of the teacher and the classroom are particularly amenable to *action research* by teachers and teacher educators. Action research is distinguishable from other types of research in a number of ways. Action research is a form of self-reflective enquiry conducted by educational practitioners to understand practice and improve it. It may be undertaken by an individual practitioner or undertaken collaboratively. It involves the definition of a problem and the trying-out of an idea with a view to changing or improving a local or immediate situation.

The questions pitched at the level of the regional or national authorities are also amenable to action research by practitioners and policymakers working at this level. In practice however few have the time, resources, skills and interest in conducting the type of research which has implications which go beyond their immediate and local environment. In such situations outside researchers can play a useful role, especially where insiders are interested in seeing the research conducted. Research may usefully be seen as an extension of the process of dialogue.

It is also important to understand that not all useful research is executed quickly, nor do all research results have immediate application. National authorities may sometimes need evidence provided by long term evaluation research of the kind reported in the *Escuela Nueva* programme if they are to promote national level reform. Teacher education institutions may need a critical mass of staff members who have conducted longer term research on multi-grade teaching and associated strategies (eg self-study, peer-learning), or who have direct experience of working in these settings, if they are to carry conviction with teacher trainees about the benefits of multi-grade teaching.

Teacher education institutions and university departments of education are members of national and international academic and professional hierarchies which legitimise some types of knowledge as more valuable than others. It is symptomatic of both

hierarchies that the realities facing the multi-grade teacher world-wide barely warrant a mention in national and international education research agenda, in priorities attached to training scholarships, in books about the problems of education, in manuals on effective teaching, in information and dissemination networks and in teacher education curricula. This review and the research it will hopefully support in the future are an attempt to *reverse* this trend.

Bibliography

Abhayadeva, C.M. (1989) **Development of multi-grade and multi-level teaching strategies**. Maharagama, Sri Lanka, National Institute of Education.

Aikman, S. (1994) Intercultural Education and Harakmbut Identity: A Case Study of the Community of San Jose in Southeastern Peru, **unpublished PhD thesis,** University of London.

Bennett, N. Roth, E. and Dunne, R. (1987) 'Task processes in mixed and single aged classes'.**Education 3-13**, 15(1): 43-50.

Blenkin, G.M. and Kelly, A.V. (1987) **The Primary Curriculum: A Process Approach to Curriculum Planning**. London, Harper and Row.

Boyd, J. (1984) **Understanding the Primary Curriculum**, London, Hutchinson.

Bray, M. (1987) **Are Small Schools the Answer? Cost-Effective Strategies for Rural School Provision,** London, Commonwealth Secretariat.

CAAAP (1992) **Propuesta de Politica Educativa: Sub-region de Madre de Dios**, Centro Amazónico de Antropologia y Aplicación Práctica, Lima.

Chirif, A. (1991) 'Contexto y caracateristicas de la educación en sociedades indigenas' in Zuñiga, M., Pozzi-Escot, I .and López, L.E. (eds) **Educación BilingüeIntercultural: Reflexiones y Desafios**. pp.29-70, Lima, Fomciencias.

Colbert, V. and Mogollon, O. (1977) **Hacia la Escuela Nueva (The New School Manual)**, 7th ed. Bogota, Ministry of Education.

Colbert, V. (1987) 'Universalización de la Primaria en Colombia - El Programa de Escuela Nueva' in **La Educacion Rural en Colombia**, Cali, Colombia, Foundation for Higher Education (FES).

Colbert, V. and Arboleda, J. (1989) **Universalization of Primary Education in Colombia - the New School Programme**. paper presented at the World Conference on Education for All, Jomtien, Thailand.

Colbert, V. Chiappe, C. and Arboleda, J. (1993) 'The New School Program: More and Better Primary Education for Children in Rural Areas in Colombia' in Levin, H.M. & Lockheed, M.E. **Effective Schools in Developing Countries**, London, Falmer Press.

Colclough, C. with Lewin, K. (1993) **Educating All the Children: Strategies for Primary Schooling in the South**. Oxford, Clarendon Press.

Collingwood, I. (1991) **Multiclass Teaching in Primary Schools: A Handbook for Teachers in the Pacific**. Apia, Western Samoa, UNESCO Office for the Pacific States.

Cummings, W.K. (1986) **Low-Cost Primary Education Implementing an Innovation in Six Nations**. Ottawa, IDRC.

Ford, B.E. (1977) 'Multiage Grouping in the Elementary School and Children's Affective Development: A Review of Recent Research' **The Elementary School Journal**. Nov. 1977: 149-159.

Gasche, J; Trapnell, L. and Rengifo, M. (1987) 'El Curriculo alternativo para la Formacion Antropologica y Pedagogica' Centro de Investigación Antropologica de la Amazonia Peruana (CIAP) and the National University of the Peruvian Amazon (UNAP), **mimeo.**

GOP (1993) **Economic Survey 1992-93**. Finance Division, Government of Pakistan, Islamabad.

Grant, M. (1978) **School Methods with Younger Children,** 4th ed. Ibadan, Evans Brothers Ltd.

Hawes, H.W.R. (1978) **Planning the primary school curriculum in developing countries**. Paris, UNESCO/IIEP.

Hawes, H.W.R. (1979) **Curriculum and Reality in African Primary Schools,** London, Longman.

Heise, M. (1984) 'Educación Bilingüe y Bicultural para los Ashaninka - un reto' in **Extracta,** Cultural Survival Quarterly No.6 December, pp.35-41, Lima.

- (1987) 'Proyecto de Educación Bilingüe Bicultural para los Ashaninka del Rio Tambo' in **Shipihui,** No.30, pp.213-220, Lima.

- (1990) 'El Proyecto de Educación Bilingüe Bicultural para los Asháninka del Rio Tambo' in **Amazonia Peruana,** vol.18 pp.81-90, CAAP, Lima.

HMI (1978) **Primary Education in England: A Survey of HM Inspectors of Schools,** London, HMSO.

Hopkins, D. and Ellis, D. (1991) 'The Effective Small Primary School: some significant factors' **School Organisation**. 11(1):115-122.

Kent, D. (n.d.) **Small Rural Primary Schools. A Resource Book,** Exeter, University of Exeter, School of Education.

Laukkanen, R. and Selventoinen, P. (1978) **Small Schools and Combined Grades** in Finland, Paris, OECD, Centre for Educational Research and Innovation

Lungwangwa, G. (1989) **Multigrade Schools in Zambian Primary Education: A Report on the Pilot Schools in Mkushi District**. SIDA Educational Division Documents, No.47, Stockholm, SIDA.

Malmros, A. and Sahlin, B. (1992) **Åldersintegrerade Klasser i Grundskolan: Förekomst och spridning. Uppföljande kartläggning läsåret 1987/8,** Stockholm, Högskolan för Lärarutbildning i Stockholm Institutionen för barn och ungdomsvetenskap

Miller, B.A. (1991) 'A Review of the Qualitative Research on Multigrade Education' **Journal of Research in Rural Education,** 7(2):3-12.

Ministry of General Education and Culture, Zambia (1985) **Multi-Grade Teaching System**. A Report on the Second National Seminar held at Malcolm Moffat Teachers' College.

Mulcahy, D. (1993) 'Developing a "distinctive approach" for multi-grade classrooms: Some preliminary considerations' **Education Canada**, 33(1):24-29.

Mycock, M.A. (1967) 'A Comparison of Vertical Grouping and Horizontal Grouping in the Infant School'. **British Journal of Educational Psychology**, 37: 133-135

Mycock, M.A. (1970) 'Vertical Grouping', in Rogers, V.R. (ed), **Teaching in the British Primary School**. London, Macmillan.

NCERT (1992) **Fifth All-India Educational Survey 1992**. National Council for Educational Research and Training, New Delhi.

NIER (1986) **Elementary/Primary School Curriculum in Asia and the Pacific,** Tokyo, NIER.

Onwuka, U. (ed) (1981) **Curriculum Development for Africa**. Onitsha, Africana Publishers Ltd.

Pratt, D. (1986) 'On the Merits of Multiage Classrooms' **Research in Rural Education**, 3, 3: 111-115.

Psacharopoulos, 'G. Rojas, C and Velez, E. (1993)'Achievement Evaluation of Colombia's Escuela Nueva: Is Multigrade the Answer?' **Comparative Education Review**, 37(3): 263-276.

Ratnaike, J. (1987) **Report of the Mission to Sri Lanka UNICEF assisted education projects**, UNICEF, Bangkok.

Respati, Boorham and Mante, R.F. (1983) 'Principles of the Impact System' in Socrates, J.B. **The Impact System of Mass Primary Education**. Quezon, SEAMEO Regional Centre for Educational Innovation and Technology.

Rodriguez, J. (1978) **El Logro en Matemáticas y Lenguaje en la Educación Primaria en Colombia**. Bogotá, Institute SER DE Investigaciones.

Rojas, C. and Castillo, Z. (1988) **Evaluación del Programa Escuela Nueva en Colombia**. Bogotá, Instituto SER DE Investigaciones.

San Roman, G. (1984) 'Programa de Educación Bilingüe e Intercultural del Alto Napo', in **Shipihui,** No.30: 183-192, Iquitos.

Shepherd, G.D. & Ragan, W.B. (1982) **Modern Elementary Curriculum,** 6th ed, New York, Holt, Rinehart & Winston.

Sri Lanka (1993) **Educational Statistics of Sri Lanka 1992** Ministry of Education and Higher Education.

Taylor, P.H. (ed) (1975) **Aims, Influence and Change in the Primary School Curriculum.** Slough, NFER.

Thomas, C. & Shaw, C. (1992) **Issues in the development of multigrade schools.** World Bank Technical Paper 172. Washington DC, The World Bank.

Tovar, T. (1989) **Ser Maestro: Condiciones del Trabajo Docente en el Peru,** Lima, DESCO/UNESCO.

Trapnell, L. (1990) 'El Programa de Formación de Maestros Bilingües de la Amazonia Peruana' in **Amazonia Peruana** vol.18: 103-116, CAAAP, Lima.

- (1991) 'Una Alternativa en Marcha: La Propuesta de Formación Magisterial de AIDESEP' in M. Zuñiga, I. Pozzi-Escot and L.E. Lopez (eds). **Educación Bilinqüe Intercultural: reflexiones y desafios** pp.219-239 Fomciencias, Lima.

UNESCO (1961) **The One Teacher School,** 24th International Conference on Public Education, Geneva, IBE.

UNESCO/APEID (1981) **Education of Disadvantaged Groups and Multiple Class Teaching: studies and innovative approaches.** Bangkok, UNESCO Regional Office for Education in Asia and the Pacific.

UNESCO/APEID (1982) **Multiple Class Teaching and Education of Disadvantaged Groups,** Bangkok, UNESCO Principal Regional Office for Asia and the Pacific.

UNESCO/APEID (1988) **Multiple Class Teaching in Primary Schools: A Methodological Guide.** Bangkok, UNESCO Principal Regional Office for Asia and the Pacific.

UNESCO/APEID (1989) **Multigrade Teaching in Single Teacher Primary Schools.** Bangkok, UNESCO Principal Regional Office for Asia and the Pacific.

US (1992) **Digest of Education Statistics,** National Centre for Education Statistics, US Dept of Education

Veenman, S. Lem, P. & Roelofs, E. (1989) 'Training Teachers in Middle-age Classrooms: effects of a staff development programme'. **Educational Studies,** 15(2):165-180.

Welsh Office (1978) **Primary Education in Wales** (Addysg Gynradd yn y Cymru Wledig). Welsh Office Education Survey No.6.

Zuñiga, M. (1989) 'El Maestro Rural en la Educación Bilingüe' in Ballon Aguire, E. and Cerron-Palomino, R. **Diglosia Linguo-Literaria y Educación en el Peru** pp.73-90 Lima. CONCYTEC/GTZ.

Annotated Bibliography

ABHAYADEVA, CHITRANGANI M. (1989)
Development of multi-grade and multi-level teaching strategies: Towards qualitative development of primary education in Sri Lanka. Maharagama, Sri Lanka, National Institute of Education, Primary Education Project

A 1988 study of entry competencies of Sri Lankan primary school children revealed a very wide range of competencies in language and mathematics in the first two grades. This leads to a recommendation that multi-grade teaching strategies should be used even in schools where there is one teacher per grade. A project in 20 primary schools aimed at developing effective strategies and materials for multigrade teaching is then described. This project has revealed the major considerations for evolving multi-grade strategies for possible future use in all schools and for inclusion in both initial and in-service teacher education. The exploratory nature of the project is emphasised and the conclusion, while hopeful, is very realistic about the mixed progress that has been made.

BARKER LUNN, J. (1984)
'Junior School Teachers: their methods and practice', *Educational Research*, 26(3): 178-188

UK research that showed small schools made greater use of group and individual work, and less whole-class teaching, than larger schools. These approaches can promote attitude improvement but need teachers who are committed to mixed-age teaching.

BENNETT, N.; O'HARE, E. & LEE, J (1983)
'Mixed-age Classes in Primary Schools: A Survey of Practice', *British Educational Research Journal*, 9(1): 41-56

A report on the first stage of a Schools Council sponsored inquiry into vertical grouping in English schools (see also Lee, 1984). There is an increasing tendency for mixed-age teaching to be adopted through force of circumstance of falling rolls, rather than by choice. As a consequence, head teachers are often negative about it and feel their teachers do not like it. Parents too have been unhappy about its introduction with consultation. As a prerequisite for making suggestions for improving practice, there is a need to clarify the wide range of responses that have been adopted.

BOURI, JANET & BARKER LUNN, JOAN (1969)
Too Small to Stream: A Study of Grouping in Small Junior Schools, Slough, NFER

A study of 28 small English schools aimed at comparing methods of organisation and grouping. While the majority of classes examined were mixed-age, it was found that mixed-ability grouping was only used where the age-range was small. There was a tendency in mixed

ability classes to over-rate the ability of the older pupils and under-rate that of the younger ones.

BRAY, MARK (1987)
Are Small Schools the Answer? Cost-Effective Strategies for Rural School Provision, London, Commonwealth Secretariat

Arises from a workshop held in New Zealand in 1986 and attended by delegates from Commonwealth Pacific countries. Aimed at educational administrators at national and regional levels, but some points are relevant for those working at school level. Multigrade teaching appears as a possible strategy for the creation of viable teaching groups in small schools, and is compared with an alternative of biennial or triennial intakes. Bray contrasts the two views of multigrade: an evil to be lived with or a goal to be aimed at. He seems to adopt the latter view but recognises the difficulties associated with multigrade teaching. Some organisational practices are suggested, with examples, and a summary of basic practical advice is included. The need for multigrade schools to be staffed by high quality teachers is contrasted with the widespread lack of pre-service courses for multigrade teachers. New Zealand is given as a (lone?) example where all teacher training colleges provide experience of small school teaching.

BROWN, KENNETH G. & MARTIN, ANDREW B. (1989)
'Student Achievement in Multigrade and Single Grade Classes', *Education Canada*, 29(2): 10-13

Their brief review of research literature concludes that there is little difference in achievement outcomes between single grade and multigrade classes, and that the latter are unpopular with teachers. Their own research in New Brunswick primary schools supports these conclusions.

COLBERT, VICKY; CHIAPPE, CLEMENCIA & ARBOLEDA, JAIRO (1993)
'The New School Program: More and Better Primary Education for Children in Rural Areas in Colombia', in LEVIN, HENRY, M. & LOCKHEED, MARLAINE E. (Eds) *Effective Schools in Developing Countries*,Washington, DC, The World Bank

The *Escuela Nueva* programme is an attempt to improve quality while increasing access and retention rates in Colombia's rural primary schools. Multigrade teaching is an integral part of the programme, together with individualised learning, a rural orientation to the curriculum and the integration of school and community. Inputs include the training of teachers for the new system, the provision of instructional materials, demonstration schools in each district, and frequent supervisory visits. The authors give a very positive review of evaluations of the programme which reveal both cognitive and non-cognitive benefits to the children. (See also Psacharopoulos *et al*, 1993)

COLLINGWOOD, IAN (1991)
Multiclass Teaching in Primary Schools: A Handbook for teachers in the Pacific, Apia, Western Samoa, UNESCO Office for the Pacific States

A book full of practical suggestions for teachers, intended for use as a handbook in a five-day in-service workshop for multiclass teachers. The second part is actually intended for the organisers of such a workshop and suggests a timetable for the coverage of the first part of the book. This first part begins with a brief review of the difficulties and advantages of multiclass teaching, but consists mainly of seven chapters of excellent advice, illustrated profusely with concrete examples. This covers school and classroom organisation, planning, classroom routines, grouping, peer teaching, and use of the local community. Many of the suggestions are simply good teaching practice, multigrade or not, and the book would be of practical use to all teachers, with or without the intended workshop.

CUMMINGS, WILLIAM K. (1986)
Low-Cost Primary Education: Implementing an Innovation in Six Nations, Ottawa, IDRC

Project IMPACT was introduced into the Philippines largely as a strategy for cutting the costs of primary education through an increase in the pupil/teacher ratio, thus increasing the possibility of achieving universal primary education. At the same time, there was to be no loss of quality in the educational experiences provided. This book reviews the approaches, the development and the difficulties of IMPACT and related projects in Indonesia (PAMONG), Malaysia (InSPIRE), Jamaica (PRIMER), Liberia (IEL) and Bangladesh (IMPACT). These did not all include explicitly multigrade organisation, but with the emphasis on modular instructional material, much of it self-instructional, together with the common use of peer-group learning and cross-age tutoring, multigrade approaches were always an option. The book is particularly useful as an account of the difficulties associated with the production and use of modular and self-instructional materials in developing country situations. The usefulness of detailed instructional guides and extensive classroom materials in the small school, multigrade contexts in Kalimantan (Indonesia) and Sabah (Malaysia) is emphasised. (See also: Socrates, 1983)

DAY, BARBARA & HUNT, GILBERT H. (1975)
'Multiage Classrooms: An Analysis of Verbal Communication', *Elementary School Journal*, 75: 458-464

An investigation, in the USA, of the claim that multiage organisation increases communication and interaction between age groups. The results did not support this claim. Although communication between age groups is possible in a mixed-age classroom, it does not occur automatically, there is a need to build opportunities for such communication into the organisation of the class.

DIXON, ANNABELLE (1978)
'Vertical grouping - A practice or a principle?', *Forum*, 21 (1): 19-21

Vertical grouping has developed in infant schools in the UK from a pragmatic observation of its beneficial effects, without any recourse to theoretical justifications. While clearly supporting the practice, Dixon recognises that there is little research and no theory to support it. She claims that vertical grouping does foster cognitive growth, particularly language development, but cites only research by Mycock (*q.v.*) in support. She condemns so-called vertically-grouped classes which are really just a collection of distinct "mini-classes". Effective vertical grouping involves classroom reorganisation to take full advantage of the opportunities that the practice offers for enhanced social learning.

DRAISEY, A.G. (1985)
'Vertical Grouping in the primary school - a positive view', *Education for Development*, 9 (1): 3-11

Though primarily concerned with the situation in the UK, much of what is said is generally applicable. Falling roles may be the source of pressure for vertical grouping, but it should be seen as valuable in its own right, and not just as a response to a problem. The advantages of vertical grouping are rehearsed, although without hard evidence: an emphasis on individual levels of development, improved socialisation and linguistic development, longer teacher-pupil relationships, and greater opportunities for both slow and quick learners. The problems associated with vertical grouping are recognised and solutions are suggested, although the emphasis is on positive attitudes from the teacher to achieve success.

EWING, J.L. (1970)
Development of the New Zealand Primary School Curriculum 1877 - 1970, Wellington, New Zealand Council for Educational Research

Essentially historical, but makes the point that a large number of single-teacher and two-teacher schools have always existed in New Zealand, and do so to this day, so that preparation for teaching in such schools, with their multigrade implications, has been part of the teacher training programme in the country for a long time. There is even a question on handling such a school on an 1884 teacher training examination paper reproduced in the book! It is also mentioned that New Zealand has run courses in multiple-class teaching for teachers from Commonwealth developing countries since 1963.

FINLEY, CARMEN J. & THOMPSON, JACK M. (1963)
'A Comparison of the Achievement of Multi-Graded and Single-Graded Rural Elementary School Children', *Journal of Educational Research*, 56(9): 471-475

Used matched pairs of boys and girls at 3rd and 5th grade levels in Californian rural schools. No differences in achievement between single- and multi-grade classes were found when tested reading, arithmetic, English, spelling and a general achievement test.

FORD, BONNY E (1977)
'Multiage Grouping in the Elementary School and Children's Affective Development: A Review of Recent Research', *The Elementary School Journal*, Nov 1977: 149-159

Ford argues that since research has provided little or no evidence of cognitive advantages from multigrade education, any defence of it must be on the grounds that it promotes social and emotional development. She lists the wide-ranging claims made for multigrade by theorists and practitioners before reviewing the research evidence. This evidence supports only some of these claims: improved self-concept and self-esteem, improved teacher-pupil relationships through longer contact, and better attitudes to school and work. Before assigning effects to a multigrade cause, however, it is important to determine what the differences are between what goes on in multigrade and in single-grade classrooms.

FORWARD, BILL (1988)
Teaching in the smaller school, Cambridge, Cambridge University press

Designed to be a "handbook to help teachers and headteachers meet the special demands of schools with fewer than 100 pupils". UK-oriented, so tending to assume resource and staffing levels higher than those to be found in developing countries. Practical suggestions are given on various ways of organising pupils, from whole school and whole class teaching through assorted forms of grouping to individual learning. Possible classroom layouts and simulated classroom models are described, including typical day patterns for different small school situations. A considerable section on project work is included. Later chapters examine the roles in a small school of headteachers, external support systems, and the wider community.

GALTON, MAURICE; SIMON, BRIAN & CROLL, PAUL (1980)
Inside the Primary Classroom, London, Routledge

Report on the findings of the ORACLE project (Observational Research and Classroom Learning Evaluation) in English primary schools between 1975 and 1980. The main concern was to study the effectiveness of different teaching approaches; this inevitably included observations in vertically-grouped classes. They found only slight differences between multi-age and single-age classrooms. In the former there was, on average, a small reduction in the pupils' time-on-task and a slight increase in time spent on 'routine' interaction, and waiting for

the teacher. It is suggested that these observations reflect the increased complexity of organisation required in vertically-grouped classes.

GALTON, MAURICE & SIMON, BRIAN (Eds)(1980)
Progress and Performance in the Primary Classroom, London, Routledge & Kegan Paul

A sequel to *Inside the Primary Classroom* (*q.v.*), making further use of ORACLE data. Only scattered references to vertical grouping, but they conclude that the practice has no impact on pupils' academic progress.

GALTON, MAURICE & PATRICK, HELEN (Eds) (1990)
Curriculum Provision in the Small Primary School, London, Routledge

Reporting on the PRISMS project, which examined practice in 168 small primary schools in England. In the schools concerned vertical grouping was almost universal. Various chapters point to the conclusion that teacher behaviour in vertically-grouped classes is remarkably similar to that in single-age classes. Teachers themselves generally felt that the differences were in degree rather than kind. The choice of whole-class teaching, various forms of grouping, or individual work was often determined by the perceived suitability of different areas of the curriculum. Whole-class teaching was commoner than might be expected, grouping was often organisational rather than collaborative (although collaborative grouping was found to produce the hardest work from the pupils), and individualisation of work generally meant individualisation of pace only, not of content.

GRIFFIN, DIANE & SMITH, R.A. (1978)
'Vertical Grouping in Secondary Schools', *Forum*, 21 (1): 22-23

A brief account of a vertical grouping experiment in mathematics teaching in a UK secondary school; very positive about the effects on both pupils and teachers.

HARBISON, RALPH W. & HANUSHEK, ERIC A. (1992)
Educational Performance of the Poor: Lessons from Rural Northeast Brazil, Oxford University Press, for The World Bank

References to multigrade teaching occur only in passing. They see multigrade as a way of increasing efficiency through class size increases, which seem to have no effect on achievement (p202). Furthermore, their data on various grouping practices in schools in rural northeast Brazil (p103) lead them to conclude that segregating by achievement level has no systematic effect on teaching or learning.

H M INSPECTOR OF SCHOOLS (1978)
Primary Education in England, London, Department of Education and Science

A study of the work of 7, 9 and 11 year-olds in 1127 classes in 542 English primary schools. It comes out against the use of mixed-age classes. It examines the "matching" between the level of work that students were actually been asked to do and the level it was felt suited their estimated ability. For 7 and 11 year-olds, single-age classes produced better matching of work to ability than did mixed-age classes. 11 year-olds in single-age classes also produced better reading and maths scores. Differences with 9 year-olds were smaller, but still favoured single-age organisation.

HOPKINS, DELYTH & ELLIS, P. DAVID (1991)
'The Effective Small Primary School: some significant factors', *School Organisation*, 11(1): 115-122

Mixed-age classes are seen as an inevitable practice in small schools. Official criticisms of in various HMI reports are countered with data supportive of small schools and vertical grouping. The key to success is seen to be the use of appropriate pedagogical methods and class organisation, particularly individual and co-operative group approaches to learning.

LAUKKANEN, REIJO & SELVENTOINEN, PEKKA (1978)
Small Schools and Combined Grades in Finland, Paris, OECD, Centre for Educational Research and Innovation

For demographic reasons, combined-grade secondary schools are common in Finland. Common practice seems to have been for combined grades to have been taught as a single class, which often resulted in a reversal of the intended order of exposure to the curriculum for some of the students in the class. This document describes a "year course" experiment based on a spiral curriculum approach that allows the same general topic to be covered at the same time in up to four combined year groups, with each group studying the topic at its own appropriate level. The production of suitable instructional materials is seen as the key to success in this project. The concluding section gives a refreshing view of Finnish attitudes to combined-grade schools. They are not only seen as a fundamental part of the system rather than an anomaly, they are also accepted as a fertile ground for the development of new ideas for use in other schools, rather than merely as the recipients of modified practices devised elsewhere.

LEE, JAN (1984)
'Vertical Grouping in the primary School: A report of a study by Lancaster University on behalf of the Schools' Council', *School Organization*, 4 (2): 133-142

The emphasis in this study was on the reality of changing organisation to vertical grouping, which was found to be widespread but often comprising a very limited age range. The attitude

of teachers and principals was found to be important for success, and their attitude was generally better when it was felt that vertical grouping had not been forced on them. In practice, it seems that teachers do not change their approach or organisation in a move to vertical grouping. While many felt they were making greater use of group-work, this was often just a form of physical organisation rather than a co-operative learning venture.

LOCKHEED, MARLAINE E. & VERSPOOR, ADRIAN M. (1991)
Improving Primary Education in Developing Countries, Oxford/Washington, Oxford University Press/ World Bank

This book reflects the World Bank's new enlightenment that the quality of learning in primary schools is important. Explicit reference to multigrade education is only brief: it is seen as one option for reducing disparities of access and achievement, and both the Indonesian Small Schools project and Columbian *Escuela Nueva* project are presented as successful examples of what can be done. It is pointed out, however, that multigrade approaches require specialised instructional materials and teacher education. In the more general discussion of learning quality, pedagogical practices that are cited as enhancing student learning include just those which many proponents see as necessary consequences of effective multigrade organisation. In particular, cross-age peer tutoring is recommended as advantageous to both tutors and tutees.

LUNGWANGWA, G. (1989)
Multigrade Schools in Zambian Primary Education: A Report on the Pilot Schools in Mkushi District, SIDA Education Division Documents No 47, Stockholm, SIDA

Multigrade primary schools have been introduced in Zambia as a way of extending full primary education opportunities to sparsely populated areas. This report suggests that the policy has been a success in terms of improved achievement, reduced attrition rates and a more positive attitude among pupils. At the same time, it does not try to disguise the difficulties which have been experienced, and it suggests that multigrade is still seen largely as a temporary expedient, in some areas at least. The fact that these schools tend to be in the poorer, more remote areas leads to problems of supervision and materials distribution, and limits the extent to which local community support can be realistically expected. The approach is clearly very demanding for the teachers. Although multigrade teaching has been introduced into teacher education courses, it is often not taken seriously, as a good performance may lead to unpopular posting to a remote area.

MALMROS, ÅSA & NORLÉN, CATHARINA (1984)
Åldersintegrerade Klasser; Förekomst och spridning, Stockholm, Högskolan för lärarutbildning i Stockholm Institutionen för pedagogik

A report on the occurrence and distribution of multigrade classes in Sweden, principally those formed for educational reasons rather than because of pupil or resource shortages. There has been recent growth in support for such classes. A 1976 government bill included a passage

encouraging age integration for the benefit of individual student development, and new curricula have supported such moves by removing year by year divisions and stressing inter-age cooperation. Teachers have expressed an interest in multigrade approaches as a means of developing more meaningful and stimulating teaching methods, but the report cautions against the belief that multigrade organisation by itself will lead to effective multigrade teaching. Data on the extent of multigrade shows that the proportion of "boroughs" (*kommuner*) with such classes increased from 25% to 46% between 1982/83 and 1983/84, although the proportions of schools or pupils involved are not given.

MALMROS, ÅSA & SAHLIN, BIRGITTA (1992)
Åldersintegrerade Klasser i Grundskolan: Förekomst och spridning. Uppföljande kartläggning läsåret 1987/88, Stockholm, Högskolan för lärarutbildning i Stockholm Institutionen för barn och ungdomsvetenskap

This is a follow-up study on the previous reference, giving data for 1987/88. By this date, some 35% of all Swedish primary classes had multigrade classes, of which 44% had introduced them for educational reasons and 20% giving a mixture of educational and resource-oriented reasons for introduction. A further 10% of all primary schools indicated that they planned to start multigrade classes; expansion seems to be continuing. Almost all of the multigrade classes involve integrations in the early years of primary schooling or between early and middle years. Upper primary classes still seem overwhelmingly to be organised along mono-grade lines.

MILBURN, DENNIS (1981)
'A Study of Multi-Age or Family-Grouped Classrooms', *Phi Delta Kappan*, 62 (7): 513-514

Two Canadian primary schools were studied over a five year period: one with multi-age classes of 3-year span, while the control had single-age classes. Little difference in achievement was found, although the younger children tended to benefit from multi-age classes. The children in multi-age classes did, however, show a more positive attitude to school.

MILLER, BRUCE A. (1991)
'A Review of the Qualitative Research on Multigrade Education', *Journal of Research in Rural Education*, 7 (2): 3-12

Concerned primarily with the situation in US rural schools. The extra demands made on the teacher by multigrade teaching are emphasised throughout, as well as the poor preparation given by initial teacher education course to meet these demands. The tendency for curricula to be inflexibly planned for single-age classes is also criticised. The second half of the paper is particularly interesting because it looks at accounts by teachers of actual practice in multigrade schools. The key advantages of multigrade are identified as the development of both

independence and interdependence among pupils. The author identifies implications of multigrade for teacher preparation, classroom organisation and student learning.

MULCAHY, DENNIS (1993)
'Developing a "distinctive approach" for multi-grade classrooms: Some preliminary considerations', *Education Canada*, 33(1): 24-29

In common with those in many other locations, the multigrade teaching concerns of small rural schools in Newfoundland and Labrador have received little attention. Mulcahy suggests that this may be due partly to their being considered as a temporary anomaly, and partly to the belief that a multigrade classroom is essentially the same as a single-grade classroom, and needs no special attention. Both of these are rejected. Parents, teachers and children all dislike multigrade classrooms, and Mulcahy argues that this is a consequence of a lack of concern for the pedagogical and curricular attention to the particular demands of they make. He calls for effective training of teachers to deal with multigrade schools and for modified or distinctive curricula responsive to multigrade organisation.

MYCOCK, MARY A. (1967)
'A Comparison of Vertical Grouping and Horizontal Grouping in the Infant School', *British Journal of Educational Psychology*, 37: 133-135

An abstract of her MEd thesis in which she compared four English infant schools, all labelled 'progressive', two using vertical grouping and two using horizontal grouping. Her research showed that vertical grouping can reduce emotional stress, improve teacher-pupil relationships, and raise aspirations, but it has no effect on achievement. The quality of the teacher is seen to be crucial to the success of vertical grouping. She found some evidence that, in reading, vertical grouping benefits slow learners but not the quicker learners.

MYCOCK, MARY A. (1970)
'Vertical Grouping', in Rogers, Vincent R. (Ed) *Teaching in the British Primary School*, London, Macmillan

A fairly comprehensive review of the history, meaning and philosophy of vertical grouping in English primary schools by a keen advocate of the practice. She sees the educational principles behind vertical grouping as being an emphasis on the child as an individual and an agent in his or her own learning. A recognition of these principles, rather than merely a response to necessity, is the key to success. The wider implications of adopting vertical grouping are examined: the need for an unstructured day but a highly structured classroom, the change in the role of the teacher to being more of a facilitator of learning, and the greater demands of assessment and recording of individual progress.

NASH, R.; WILLIAMS, H.L. & EVANS, M. (1976)
'The one-teacher school', *British Journal of Educational Studies*, 24 (1): 12-32

A study of five one-teacher primary schools in rural Wales, with an average of 17 pupils in each, aged between 4 and 11 years old. What is remarkable is that despite the obvious multigrade situation of these schools, classroom organisation was most commonly one of grouping by age.

NOONAN, RICHARD & HALLAK, JACQUES (1987)
'Multi-age instructional settings in less developed countries', *Prospects*, 17 (4): 607-625

An analysis of IEA data from Chile and India to investigate the effect on achievement of having a wide range of ages within a primary school class. It is not always clear whether they are concerned with a range of ages in a single grade or in a genuine multi-grade situation, but they do mention the literature on multigrade teaching, and their conclusion that a wide age range within a grade has no significant effect on achievement can be read as being applicable to a multi-grade class.

OBERLANDER, T. MARJORIE (1989)
'A Nongraded, Multi-Aged Program That Works', *Principal*, 68 (5): 29-30

A very brief description of a US experiment that mixed five- to seven-year-olds in one class, but with more than one teacher available, and with some returning to age-groups at times. Advantages are claimed in terms of the ability of the approach to be tailored to individual needs.

PRATT, DAVID (1986)
'On the Merits of Multiage Classrooms', *Research in Rural Education*, 3(3): 111-115

Through an interesting mix of ethnology, anthropology and history, the argument is made that mixed-age groupings are "natural" and lead to less tension and aggression. The introduction of single-age classrooms to the USA is traced to nineteenth century Prussian models. A review of thirty experimental studies in the USA and Canada concludes that it is the social and emotional development of the child which benefits from multiage classrooms, not academic achievement. It is further argued that, through greater flexibility, multiage classrooms can better meet the needs of both the exceptionally fast and slow learners without the social and emotional problems of grade skipping or repeating. While admitting that multiage organisation can be a strain on teachers, the author suggests the introduction of some cross-age activities into all primary schools.

PSACHAROPOULOS, GEORGE; ROJAS, CARLOS & VELEZ, EDUARDO (1993)
'Achievement Evaluation of Colombia's *Escuela Nueva*: Is Multigrade the Answer?', *Comparative Education Review*, 37(3): 263-276

Cognitive and non-cognitive tests were used to compare children's achievement in Colombia's *Escuela Nueva* and traditional schools. The authors concluded that *Escuela Nueva* had significant independent effect on student outcomes, controlling for student background and school inputs. (They contrast this with the findings in industrialised countries that no cognitive effect is observed from multigrade teaching, although it should be remembered that multigrade is only one aspect of *Escuela Nueva*.) They consider multigrade, when implemented properly, to be an effective way of increasing achievement, but they include cautionary notes about their encouraging preliminary cost analysis and about the problems of replication of the project. (See also Colbert *et al*, 1993, for a description of the Escuela Nueva programme.)

ROELOFS, ERIK; RAEMAEKERS, JAN & VEENMAN, SIMON (1991)
'Improving Instructional and Classroom Management Skills: Effects of a Staff Development Programme and Coaching', *School Effectiveness and School Improvement*, 2 (3): 192-212

This is a continuation of the work reported in Veenman *et al*, 1989 (*q.v.*), in which the effectiveness of an in-service staff development programme, designed to help teachers cope with mixed-age classes, was investigated. The new element reported here is the use of coaching of teachers to help them transfer the skills they had learned in the original programme. It was found that this coaching led to further increases in pupils' time-on-task levels, and to improvements in the teachers' ability to organise instruction and deal with disturbances.

SCHRANKLER, WILLIAM J. (1976)
'Family Groupings and the Affective Domain', *The Elementary School Journal*, 76: 432-439

A study in the USA of the effects of multi-age grouping on children's self-concepts and attitudes towards school, with a secondary aim of assessing achievement in reading and maths. Three forms of classroom organisation were compared: Complete Multi-age, with pupils from 5 years to 12 years mixed together; Restricted Multi-age, with 2 to 3 year age-span mixes; and a control of single-age grouping. The overall conclusion is that the affective components are improved by multi-age grouping while cognitive skills are not impaired. For Schrankler, one of the important points about multi-age grouping is that it offers pedagogical opportunities that are not possible in single-age classrooms.

SIU-RUNYAN, YVONNE (1991)
'Learning from students: an important aspect of classroom organization', *Language Arts*, 68 (2): 100-107

Although the author is making general points about teaching reading and writing to junior school age children, these are based on recollections of her own teaching experience in a mixed-age classroom, and many of the techniques she describes make use of children of different ages working together.

SOCRATES, JOSE B. (Ed) (1983)
The IMPACT System of Mass Primary Education, Quezon City, SEAMEO Regional Center for Educational Innovation and Technology

The primary concern of the IMPACT project is seen as the production of curricula and materials that will facilitate learning without the continual presence of the teacher. This is perhaps its key relevance to the practice of multigrade teaching. Three main modes of delivery were adopted to achieve this: (1) programmed teaching by an older pupil, (2) peer-group learning, and (3) individual study or self-instruction. As well as being descriptive of the system, various chapters provide useful insight into the complexities of materials production and implementation of such a scheme. (See also: Cummings, 1986)

THOMAS, CHRISTOPHER & SHAW, CHRISTOPHER (1992)
Issues in the Development of Multigrade Schools, World Bank Technical Paper 172, Washington D.C., The World Bank

This paper takes a positive view of multigrade teaching, seeing the advantages as outweighing the disadvantages. It laments the fact that less developed countries have tended to see multigrade as an inferior solution made necessary by demographic and material difficulties, whereas developing countries have taken it to be a powerful pedagogical tool. One consequence for the LDCs is that have tended to retain single grade pedagogical methods in multigrade situations, thus failing to reap the potential benefits. The authors review the teaching practices which make best use of multigrade organisation, supporting independent learning and peer tutoring in particular. Classroom and school issues are examined, notably classroom layouts, various forms of grouping and the materials and resources needed. Local and regional level support and advisory structures are seen as essential. Consequences for national policy of adopting multigrade approaches are identified as decentralisation of administration, greater flexibility in the curriculum, and, most importantly, the production of suitable materials and the provision of teacher training in multigrade techniques.

UNESCO/IBE (1961)
The One-Teacher School (24th International Conference on Public Education), Geneva, International Bureau of Education

Based on responses to a 1959 questionnaire to which 58 countries responded that they had one teacher-schools to a greater or lesser extent. This questionnaire asked for data on the extent of one teacher schooling, administration and organisation, curricula, syllabuses and methods, and teaching staff, including training. Though very dated, the document is a useful

indicator of both the widespread existence of one-teacher schools (which must be multigrade schools), and the widespread tendency to ignore their particular needs.

UNESCO/APEID (1981)
Education of Disadvantaged Groups and Multiple Class Teaching: studies and innovative approaches, Bangkok, Unesco Regional Office for Education in Asia and the Pacific

The report of a Study Group Meeting held in Jakarta in 1980. The experiences of and responses to multigrade teaching are given for the participating countries: India, Indonesia, Korea, Maldives, Nepal, Philippines, Sri Lanka and Thailand. This is followed by a comparative analysis of these reports. In all countries, multigrade is associated with disadvantages such as remoteness and under-development. Most countries recognise problems with curriculum, teaching methods and resources, but virtually all insist on a common curriculum for single-grade and multigrade schools, and include nothing on multigrade teaching in pre-service teacher education. A summary of various innovations being tried in the participating countries is given, while the final chapter outlines possible directions and priorities for the development of alternative approaches.

UNESCO/APEID (1982)
Multiple Class Teaching and Education of Disadvantaged Groups. National Studies: India, Sri Lanka, Philippines, Republic of Korea, Bangkok, Unesco Principal Regional Office for Education in Asia and the Pacific

Multiple class teaching is seen as a necessity forced on schools in isolated rural communities by low population densities. These communities, through their poverty, are the main source of the "disadvantaged groups" of the title, although the term also covers Scheduled Castes in India and plantation workers in Sri Lanka. The first part of the report summarises general difficulties under two main headings: school-based problems and community-based problems. (The latter are often not peculiar to multiple class schools alone.) A summary of some of the innovative measures being tried out in the countries concerned reveals that strategies such as school consolidation, double shifts and "alternate day attendance" have been considered as alternatives to true multigrade teaching. The individual national reports then follow.

UNESCO/APEID (1988)
Multiple Class Teaching in Primary Schools: A Methodological Guide, Bangkok, Unesco Principal Regional Office for Asia and the Pacific

This is a synthesis of material from guides produced separately in India, Japan, Malaysia and Nepal. Although full of practical advice on teaching multigrade classes, it is probably not intended for use as a primary teachers' handbook as such, but rather as a resource for the production of such a book, or other teacher materials, in other countries. Principles and practical suggestions are presented on school and classroom organisation, teaching strategies and techniques, materials production, and assessment and record-keeping. Many of the

suggestions are generally applicable rather than being purely of relevance to multigrade classes. It adopts the position that multigrade school organisation is a response to difficulties and shortages rather than being a practice to be recommended on educational grounds, but it does list advantages of the approach as well as disadvantages and difficulties.

UNESCO/APEID (1989)
Multigrade Teaching in Single Teacher primary Schools, Bangkok, Unesco Principal Regional Office for Asia and the Pacific

The result of a Training Workshop on Multigrade Teaching in Primary Schools in Jakarta, with participation and reports from twelve countries in the region: Australia, Bangladesh, China, India, Indonesia, Korea, Maldives, Malaysia, Nepal, Pakistan, Philippines and Thailand. A report from each country is included, outlining in each national context the nature and incidence of multigrade teaching, population profiles of pupils in multigrade schools, difficulties faced by these schools and measures adopted to overcome them, proposals for improving multigrade schools, and inputs required. The synthesis of the country reports, while recognising advantages of multigrade, provides a long list of difficulties faced. These difficulties appear to arise from four major sources: curricula designed for mono-grade teaching, a shortage of teaching/learning materials, the tendency for multigrade schools to be in remote rural areas, and inadequate preparation of teachers for the handling of multigrade classes. The need for considerable further research is acknowledged, but a framework for improving multigrade teaching is proposed.

VEENMAN, SIMON; LEM, PIET & WINKELMOLEN, BEN (1985)
'Active Learning Time in Mixed Age Classes', *Educational Studies*, 11 (3): 171-180

A report of a study in the Netherlands of year3/year4 mixed-age mathematics and language classes. Their review of the literature on achievement and attitudes in mixed-age classes in the USA, UK and Netherlands concludes that the results are equivocal. Their own study found no significant differences in time-on-task between mixed- and single-age classes. Teachers found mixed-age class teaching more difficult, but claimed text-books did not take conditions in such classes into account. As a consequence, teaching tended to involve treating the two age groups as single classes, alternating with individual study.

VEENMAN, SIMON; LEM, PIET & ROELOFS, ERIK (1989)
'Training Teachers in Mixed-age Classrooms: effects of a staff development programme', *Educational Studies*, 15 (2): 165-180

The Netherlands has seen an increase in the use of mixed-age classrooms in primary schools, due largely to falling school rolls. Earlier studies by the authors identified the difficulties that teachers had handling these classes and an in-service programme was devised to help them deal with these difficulties: Dealing with Mixed-age Classes (DMC). This article is a report of an investigation into the effectiveness of this programme that used classroom observation

techniques, pre- and post-training, in an experimental school and a control school. The programme was shown to lead to increased time-on-task for the pupils and improvement in teacher behaviour regarding effective instruction, lesson design and execution, and classroom organisation and management.

WAY, JOYCE W. (1979)
'Verbal Interaction in Multiage Classrooms', *The Elementary School Journal*, 79(3): 178-186

A study of the form and extent of verbal interaction between children of different age groups in multiage classrooms covering a variety of age-group combinations, in the USA. Way found that in a classroom with just two consecutive age groups combined, interaction between the groups did occur without either group dominating. Where three age groups were combined in the same classroom, however, little interaction occurred. Way suggests that the teacher may be responsible for this effect through a greater tendency to use age-group clusterings when the age range is larger.

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